
Analysis of Subarea Development Opportunities Jackson East Project

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Prepared for:

City of Hillsboro

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1 Introduction

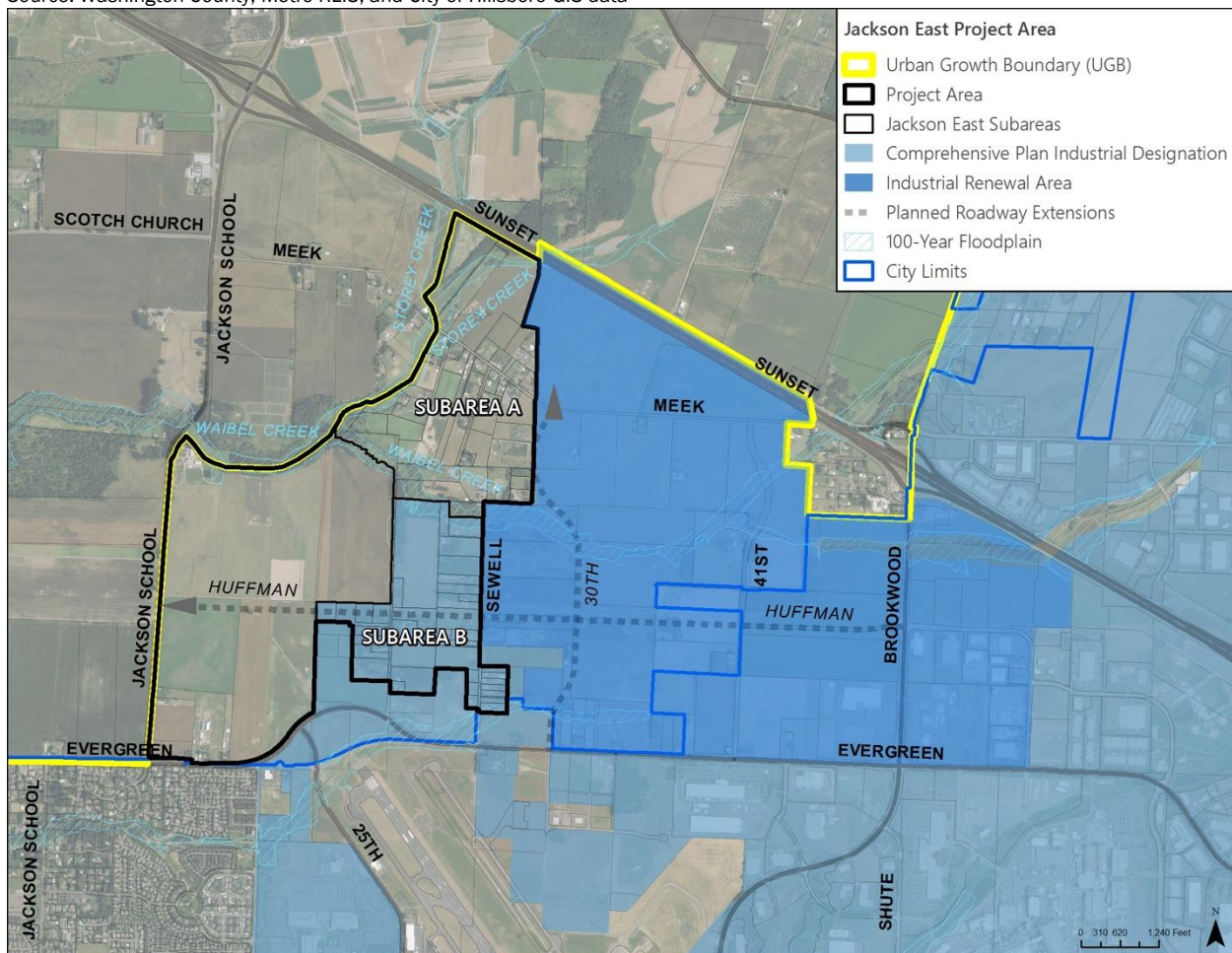
1.1 Background

The Jackson East Project Area is located north of Hillsboro city limits at the edge of the Metro Urban Growth Boundary (UGB) in unincorporated Washington County. The Project Area includes approximately 545 acres brought into the UGB in 2014 by House Bill 4078 (HB 4078), and 125 acres of adjacent rural-residential land along Sewell Avenue brought into the UGB in 2005.

The Project Area is located adjacent to North Hillsboro's existing and planned industrial employment areas, and is shown in Exhibit 1. The North Hillsboro Industrial Renewal Area is located to the east of the project area. This report focuses on two Jackson East Subareas (Subareas) shown in Exhibit 1.

Exhibit 1. Jackson East Project Area

Source: Washington County, Metro RLIS, and City of Hillsboro GIS data



Subarea A, north of Waibel Creek, is a mixture of large-lot residential development and tax lots in farm use. Subarea B is south of Waibel Creek and is developed with residential development and some farm uses and is in closer proximity to Hillsboro city limits and the Hillsboro Airport. Subareas A and B were brought into the UGB for future employment. Hillsboro Comprehensive Plan amendments adopted in 2008 designated Subarea B for industrial uses. The predominance of highly-parcelized, rural-residential in Subarea B is one likely factor why this Subarea has not redeveloped with industrial uses over the past 8 years.

This report is part of the broader Jackson East Project, which includes the Subareas and the future industrial area to the west of the Subareas. This Jackson East Project Area's western portion is not included in the report's analysis because it is primarily large-lot vacant or partially vacant land under common ownership that will require little land assembly for future employment development consistent with its UGB expansion.

1.2 Analysis Objective

The Legislature brought Subarea A into the UGB (through HB 4078) for employment even though the City did not request its inclusion in the UGB. The highly-parcelized, rural-residential development patterns in both Subarea A and Subarea B complicate their redevelopment for industrial uses consistent with the surrounding North Hillsboro industrial area. The City must make an informed policy decision regarding the Subareas' future uses before continuing with detailed planning work. This analysis is to help inform this decision.

2 Existing Conditions and Planned Improvements

This chapter summarizes existing residential, agricultural, and natural resource conditions and planned improvements in and around Subarea A and Subarea B. Additional information about existing conditions is in Appendix A. The following images illustrate the existing uses and conditions in the Subareas.



The existing conditions and planned improvements in and around the Subareas have implications for the types of development likely to occur in the area over the next 20 years.

Subareas A and B Rural-Residential

Subareas A and B are highly parcelized, with 88 tax lots in 321 acres of developable land, about 60% of which is in Subarea A. More than half of the tax lots are smaller than two acres. The Subareas have two larger tax lots, both a little larger than 20 acres and 86 sites smaller than 15 acres. Of the smaller sites, 53 are smaller than two acres. The ownership within the Subareas is diverse, with 11 instances in which two or more tax lots have common ownership. None of the areas in contiguous common ownership are, when combined, larger than 12 acres.

Most tax lots have older residential development that covers a small part of the tax lot. Three-quarters of tax lots (67) having an existing house. Most tax lots have relatively small structures, covering less than 5% of the tax lot. There are nine tax lots where the house covers 6% or more of the lot. These lots are all small, with eight smaller than one acre and one tax lot of about two acres. Eighty percent of the housing in the Subareas was built prior to 1981, with 11 houses built since 2000.

The sales price of housing in the Subareas has been similar to Hillsboro's average but the average tax lot size is much larger than Hillsboro's typical lots. Fourteen properties in the Subareas were sold between 2007 and 2015 for prices ranging from \$280,000 to \$1,250,000. Seven of the properties sold had a price less than \$500,000 and five had a price above \$500,000. The house that sold for \$1,250,000 is one of the larger houses and more recently built homes in the area. For comparison, the average home sales price in Hillsboro in June 2016 was \$328,500.¹ Housing in Subarea A generally has higher real market value and sales price than housing in Subarea B. Over the past 15 years, individual property owners have developed larger single-family detached housing on very large lots, particularly within Subarea A.

The size of properties that were sold since 2007 ranged from 0.7 acres to 5.8 acres (30,000 to 250,000 square feet). In comparison, average tax lot size in Hillsboro is typically smaller than 7,000 square feet. On a per-acre basis, sales prices ranged from \$100,000 per acre (for the 5.8-acre property) to \$600,000 per acre (for the 0.7-acre property). This suggests that the value of the house had more effect on sales price than the size of the lot. Housing values are generally higher in Subarea A than in Subarea B. The value of houses and other buildings in the Subareas ranged from less than \$100,000 to about \$500,000, based on the Washington County Assessor's real market value. Subarea A has higher value properties than Subarea B. The higher sales prices for housing sold since 2007 were in Subarea A.

¹ Zillow.com

North Hillsboro Industrial Renewal Area

Nearly one-fifth of the region's manufacturing employment is located in the North Hillsboro industrial area. The City has made substantial investments over the past several decades to grow businesses and employment in the North Hillsboro industrial area, which has become critical to the region and state's sustained economic competitiveness and prosperity. In December 2015, the City adopted the North Hillsboro Industrial Renewal Area (IRA) to help bring land brought into the UGB for employment closer to development-ready status. Over its lifetime, the IRA will transform from relatively low-impact farmland to an active industrial district. The IRA is expected to redevelop with a range of industrial uses including high tech, industrial, and business parks. Planning and development strategies for the IRA has begun in earnest to help bring the IRA closer to development-ready status. Given the nature of the proposed users in the IRA, impacts on existing uses in the Subareas will be similar to those faced by other currently developed areas of Hillsboro that lie adjacent to industrial users. These standard operational impacts include truck traffic from shipping and receiving activities, traffic from workers traveling to and from jobs, and, depending on the specifics of the industrial activities, some potential noise and odor from manufacturing.

Hillsboro Airport

The Hillsboro Airport, the second busiest general aviation airport in Oregon, is located to the south of the Subareas. The Hillsboro Airport will have some impacts on development in the Subareas through development restrictions, particularly for a portion of Subarea B in closer proximity to the Runway Protection Zone. An Airport Safety and Compatibility Overlay (ASCO) Zones and an Airport Use (AU) Zone were adopted into the Hillsboro Zoning Ordinance in 2009. The City-initiated zone changes to apply the AU and ASCO Zones were successfully appealed to the State Land Use Board of Appeals. Following that ruling, the City discontinued further work on the AU and ASCO Zones though they still exist on paper in the Zoning Ordinance. The Port of Portland is now beginning the process of updating the Master Plan for the Hillsboro Airport, and the City will be a major participant in that process. It is anticipated that the City will rewrite both the AU and ASCO Zones' language during or following the Hillsboro Airport Master Plan update.

West of Subarea B

The existing uses to the west of Subarea B are predominately agricultural with a limited number of rural households scattered amongst the farmland. Given the proximity of this adjacent area to existing industrial uses, the flat topography of the land, the access to regional transportation networks, and the region's abundant power and water supplies, this western portion of the Jackson East Project Area is a natural fit for future industrial expansion. Metro, Washington County, the City of Hillsboro, and other agencies have coordinated studies and projects aimed at identifying a path to realization of industrial development in this area.

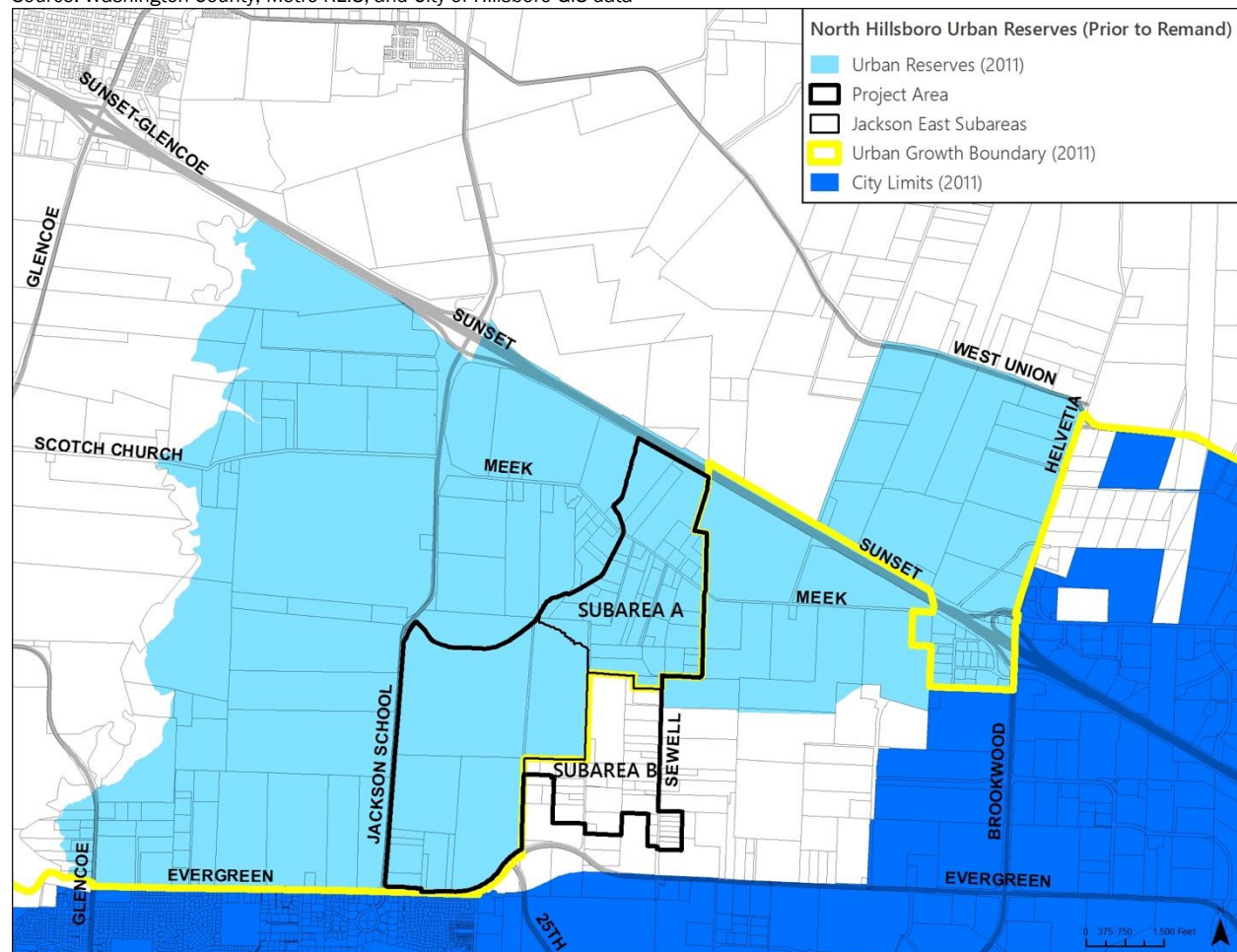
West of Subarea A

The area to the west of Subarea A is in agricultural and rural-residential use. Beginning in the mid-2000s, cities, counties, and special districts engaged with Metro in a multi-year planning

effort to designate urban reserves and rural reserves around the Portland region. Urban reserves are lands suitable for accommodating urban development over a 50-year period. Rural reserves are lands that are high value working farms and forests, or have important natural features like rivers, wetlands, buttes and floodplains, to be protected from urbanization for 50 years. In 2011, urban and rural reserve designations supported by the City of Hillsboro and Washington County were adopted by the Metro Council and subsequently acknowledged by the State's Land Conservation and Development Commission (LCDC). These included urban reserves beside Hillsboro stretching from Evergreen Road to Sunset Highway, the Jackson East Project Area to McKay Creek (See Exhibit 2).

Exhibit 2. North Hillsboro Urban Reserves (Prior to Remand)

Source: Washington County, Metro RLIS, and City of Hillsboro GIS data

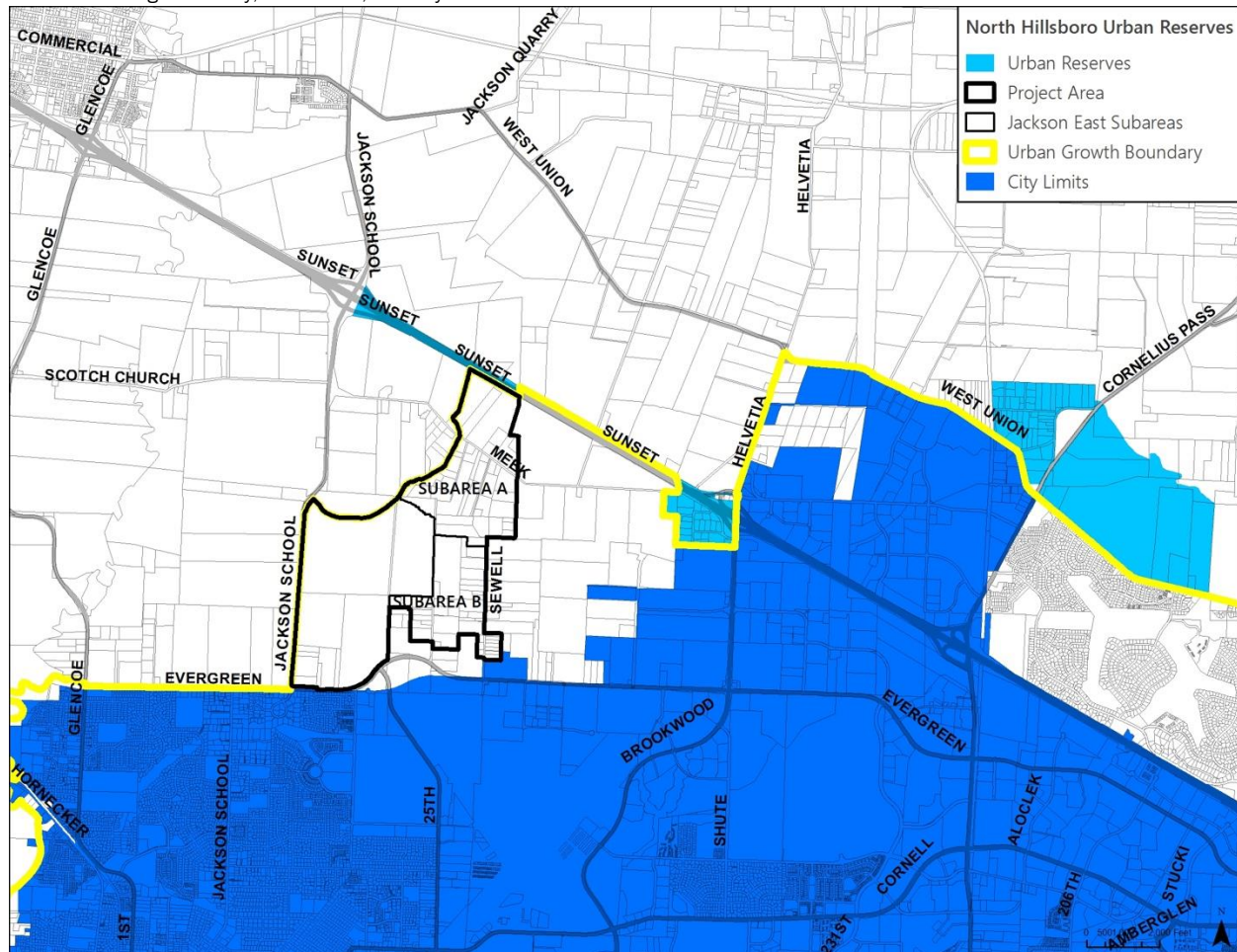


In early 2014, the Oregon Court of Appeals remanded the LCDC decision approving urban and rural reserves for the Portland region. Several months later a coalition including state legislators, the Governor's office, cities, Metro, Washington County, and other involved parties were brought to the table to discuss changes to the originally proposed urban and rural reserves in Washington County. The Legislature unanimously passed the outcome of these negotiations in HB 4078. HB 4078 stripped 1,700 acres of urban reserve land north of Hillsboro from what had been adopted by the Metro Council in 2011 and acknowledged by LCDC. This included re-designating land to the west of Subarea A between Waibel Creek, Storey Creek, Jackson School

Road, and Sunset Highway from an urban reserve to a rural reserve. Exhibit 3 shows the areas now designated for urban reserves in North Hillsboro.

Exhibit 3. North Hillsboro Urban Reserves

Source: Washington County, Metro RLIS, and City of Hillsboro GIS data



In the future, the City may support re-designating some rural reserves as urban reserves to benefit Hillsboro, the region, and the state. One such example is re-designating land to the west of Subarea A along Sunset Highway as an urban reserve for future employment.

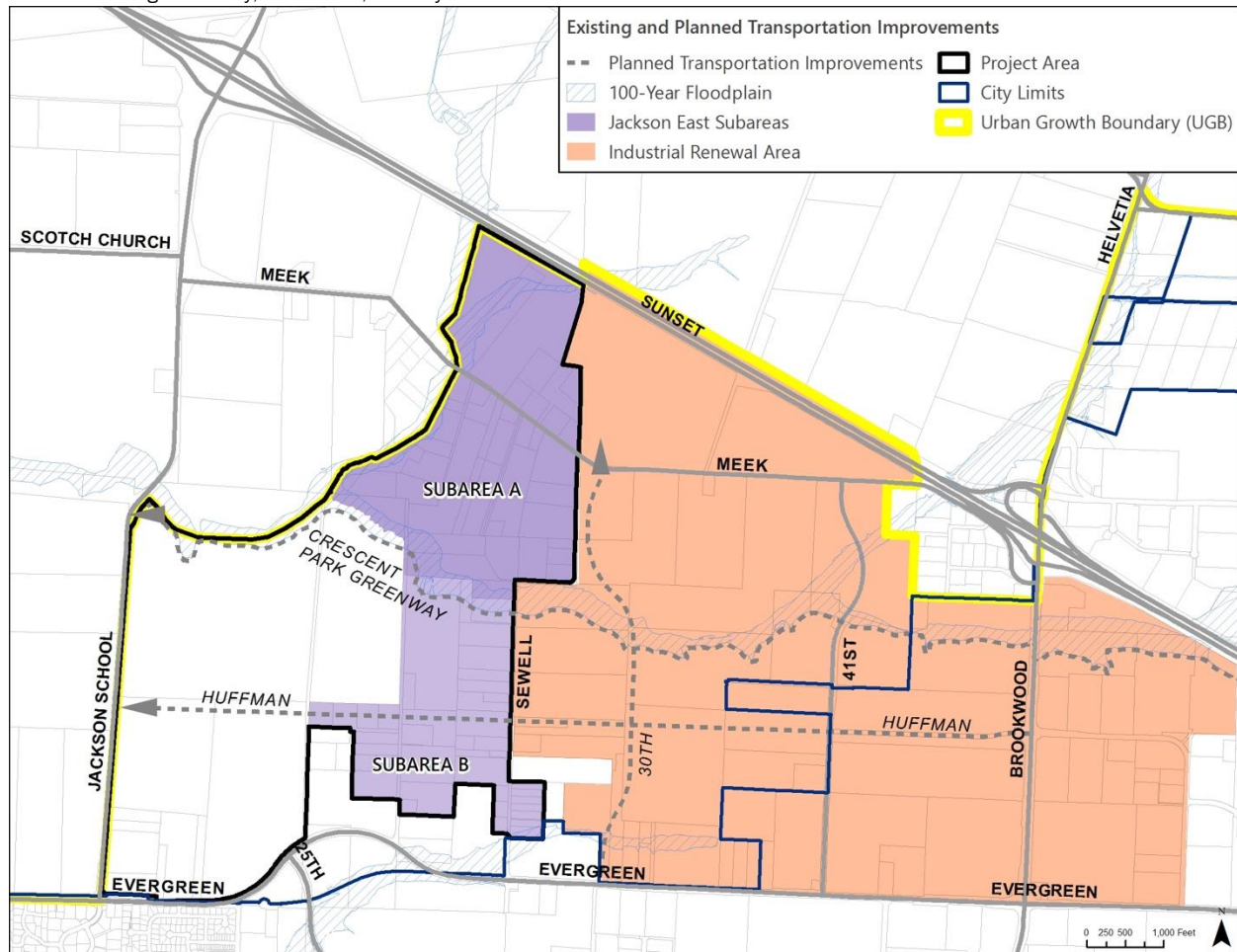
Transportation Infrastructure and, Utilities

The primary existing transportation connections in-and-around the Jackson East Project Area are Sewell Avenue, Evergreen Road, Meek Road, and Jackson School Road, shown in Exhibit 4. Planned new transportation improvements in the IRA to the east include: extension of 30th Avenue from Evergreen Road to Meek Road and the extension of Huffman Street from Brookwood Parkway to Jackson School Road. In the Jackson East Project Area, an extension of 25th Avenue is expected to connect Evergreen Road and an extended Huffman Street. Future truck freight within the IRA adjacent to the Subareas is planned to be routed along 41st Avenue, an extended 30th Avenue, and the Huffman Street extension to the Brookwood/Helvetia/Sunset Highway Interchange or the Jackson School Road/Sunset Highway Interchange. Though the

Subareas have no existing public utilities, such as water and wastewater services, these will be developed as part of the Subareas' urbanization.

Exhibit 4. Existing and planned transportation improvements,

Source: Washington County, Metro RLIS, and City of Hillsboro GIS data



The City is planning a Crescent Park Greenway to cross the Subareas and larger Jackson East Project Area and be a continuous loop around the City. The Crescent Park Greenway is to offer recreation on a natural-surface trail, enhance and restore natural areas, manage stormwater, and be an asset for future development. The exact location of this Greenway has yet to be decided but will likely be along Waibel Creek.

3 Summary of Development Considerations

This chapter summarizes ECONorthwest's development considerations in the Subareas. This summary is based on the information presented in Appendix B through D about industrial, residential, and commercial development opportunities and constraints.

3.1 Overall Development Considerations

There are several variations for how the Subareas may redevelop, depending on the City's policy choices. The following describe three distinct variations for how and when the Subareas may redevelop based on discussions with the City.

- **Variation 1: Slow conversion to industrial.** If the City retains the industrial designation in Subarea B and applies the same designation to Subarea A, and if transportation infrastructure and utilities are built gradually as the Subareas develop, then the conversion to industrial uses from rural residential may take 10 to 20 years, or longer. Subarea B is likely to develop before Subarea A, given existing development patterns and proximity to other industrial development. The development of transportation infrastructure and utilities and how they are funded will be the issue that presents the biggest barrier to redevelopment for industrial uses. The other key barrier is relatively high land prices (beyond the current market for industrial land) and landowners' willingness (or unwillingness) to sell their land and houses for a price that industrial developers can pay.
- **Variation 2: Active conversion to industrial.** If the City takes an active role in redevelopment of the Subareas for industrial uses (such as designating Subarea A for industrial uses, taking a proactive role in developing transportation infrastructure and utilities, and assisting with parcel assembly), the conversion to industrial uses may be faster. The timing for redevelopment may be as short as three years (or less) in Subarea B after transportation infrastructure and utilities' development, or it may take longer depending on regional demand for employment land and national economic cycles.

Transportation infrastructure and utilities will need to be extended to the Subareas to facilitate industrial redevelopment. The City may need to determine whether to use public funds to extend transportation infrastructure and utilities into the Subareas (beyond the Huffman Street extension and Waibel Creek improvements) or to other future industrial areas less constrained by existing highly-parcelized, rural-residential development.

- **Variation 3: Residential redevelopment.** In this variation, the City designates Subarea A for residential and allows a mixture of residential, industrial, and commercial in Subarea B. The timing of development may vary by type of development. Once financing for the extension of transportation infrastructure and utilities into Subarea A has been determined with developers, residential development could occur in three to five years, or longer depending on regional demand for land and national economic cycles. The

time needed for industrial development in Subarea B will depend on development of transportation infrastructure and utilities, similar to the issues in Variation 1 and Variation 2. Development of a commercial node will depend on the timing of residential development and employment development in adjacent areas. At best, commercial development might occur at the same time as other development but it is more likely to occur after other development and will be dependent upon residential and employment densities in the surrounding areas.

Exhibit 5 shows the range of potential uses and their applicability in the Subareas. Exhibit 5 helped ECONorthwest and the City narrow the range of possible future uses to those that deserve further attention in this report. This analysis considers redevelopment opportunities for industrial development, some types of residential development (single-family detached housing and low-density multifamily housing), and small-scale commercial development. Small-scale commercial development was examined because of limitations on the size of commercial uses in regionally significant industrial land areas.

Exhibit 5. Potential Types of Development in the Subareas

Development Type	What is it?	Major market drivers	Applicability for the Subareas	Evaluated in this report?
Heavy Industrial	Heavy industrial businesses are generally manufacturing with heavy equipment or outputs, such as semiconductors or metals manufacturing.	Availability of land of the right size in the right location Access to highways, rail, and ports Access to skilled workforce Compatibility with adjacent uses	Subareas have characteristics suitable for heavy industrial Development of nearby residential may create conflicts with heavy industrial	Yes
Light Industrial	Light industrial include manufacturing such as micro electronics, medical devices, or food processing. Other types of businesses may be classified as light industrial, such as data centers, campus industrial, business parks, distribution, and biotechnology.	Availability of land of the right size in the right location Access to highways, rail, and ports Access to skilled workforce Compatibility with adjacent uses	Subareas have characteristics suitable for light industrial development of nearby residential may create conflicts with some light industrial businesses	Yes
Large-Lot Single-Family Housing	Single-family detached housing on lots at least 7,000 square feet and often 10,000 square feet or larger	Proximity to jobs with higher income High-quality natural and man-made amenities and services Access to automotive transportation Location with 10 or more acres for development	Subarea A has characteristics appropriate for this housing type Taxlot aggregation will be required in most parts of the Subareas	Yes
Small-Lot Single-Family Housing	Single-family detached housing, generally on lots smaller than 6,000 square feet	Proximity to jobs Access amenities and services Access to automotive transportation Location with 10 or more acres for development	Subarea A and Subarea B characteristics appropriate for this housing type Taxlot aggregation will be required in most parts of the Subareas	Yes

Development Type	What is it?	Major market drivers	Applicability for the Subareas	Evaluated in this report?
Townhouses and Duplexes	Low-density attached housing, often referred to as the missing middle	Proximity to jobs Access amenities and services Neighborhood where two and three story attached housing is compatible Access to automotive transportation and transit Small sites, such as sites smaller than 2 acres	This type of development is likely to be done on infill sites as part of single-family development in the Subareas Lack of access to transit may make development of a substantial amount of this type of housing less likely	Yes
Apartment Buildings	Apartment buildings ranging from two-story garden apartment buildings to buildings with four or more stories	Proximity to jobs Access amenities and services Neighborhood where multistory attached housing is compatible Access to automotive transportation and transit	The Subareas are less appropriate for apartment buildings because Airport regulations and lack of access to transit	No
Small Commercial Node	Retail, restaurants, and local services	Proximity to jobs and housing Location on a corridor or at a key intersection Small site, such as one or two acres	Planned employment in nearby industrial areas and expected employment or residential growth in the Subareas would support a small amount of commercial development	Yes
Large Commercial Development or Mixed-Use Development	Larger-scale commercial development, such as office building, a shopping center, or a building with mixed use	Proximity to jobs and housing Location on a corridor or in a commercial center Access to automotive transportation and transit Demand for commercial development	The Subareas are not appropriate for apartment buildings because of Airport regulations, lack of access to transit, and restrictions on commercial development in an industrial area.	No

The following are overall development considerations for the industrial and residential development evaluated in this analysis for the Subareas.

- **The lack of transportation infrastructure and utilities in the Subareas is a challenge for redevelopment, regardless of use.** Developing the Subareas will require urban-level transportation infrastructure, water, wastewater, and other utilities. Depending on how transportation infrastructure and utilities are developed and funded, their cost may increase development costs and affect the timing of the Subareas' redevelopment.

For either industrial or residential use, transportation infrastructure and utilities are likely to be needed before significant development occurs. Since many funding sources are derived from new development (for example, many systems development charges are collected as the new units are built) this creates a financing challenge. In other areas, such as South Hillsboro, the City has at least partially solved this challenge through negotiating a financing plan for transportation infrastructure and utilities with major property owners in advance of development occurring. This will be a very difficult process to undertake in these Subareas, where there are many property owners with disparate or unknown interests.

- **Recently developed, high-cost housing in the Subareas will pose a challenge for redevelopment regardless of designated use.** Subarea A includes recently-built housing with above average sales prices. The cost of property (including housing) for some of the tax lots in the Subareas is relatively high, especially on a per-acre basis. These high costs will increase the costs of redevelopment, posing challenges for industrial or residential redevelopment.
- **The development and ownership patterns will pose challenges for any type of future development.** Ninety-percent of the land in the Subareas is on sites smaller than five acres and few adjacent tax lots have the same owners. Most redevelopment for industrial or residential uses will require assembling parcels, which generally makes redevelopment more challenging and costly than greenfield development. Parcel aggregation is a common development challenge across the Portland region.
- **There is potential demand for industrial and residential development in both Subareas.** Developers indicated demand could result in parcel assembly for either industrial or residential if transportation infrastructure and utilities were in closer proximity.

3.2 Industrial Development Considerations

Appendix B presents information and the opportunities and constraints for industrial development in the Subareas. This section presents the conclusions of that analysis.

Hillsboro's Economic Opportunities Analysis (EOA) shows demand for more than 1,900 acres of industrial land to accommodate growth of industrial businesses through 2034. Industrial growth opportunities in Hillsboro include businesses in the following industries: micro electronics, electronic medical devices, semiconductors, other high-tech and electronics, software and media, food processing, biotechnology, and distribution.

The EOA shows that Hillsboro has about 1,100 acres of vacant industrial land, with an additional 1,400 acres of infill and redevelopable industrial land. While the EOA concludes that Hillsboro will be able to accommodate 20 years of employment growth on the industrial land within Hillsboro, infill and redevelopable land (such as land in the Subareas) will play an important role in supporting employment growth.

In the EOA, most land within the Subareas was categorized as vacant or partially vacant in the employment buildable lands inventory. Land in the Subareas was considered part of the land available to meet the City's demand for industrial land over the 20-year planning period.

Throughout this report, we assume that most industrial development in the Subareas will occur on sites of 2 to 15 acres in size, possibly with development on a few sites larger than 15 acres. Given this assumption and in the absence of developers or businesses being willing to assemble many small parcels (those less than 2 acres), it is reasonable to expect that 35 to 60 businesses might locate within the Subareas on existing parcels.

The advantages to industrial development in the Subareas are:

- **Adjacency to the North Hillsboro industrial area.** The City has requested and the Metro regional government has approved multiple UGB expansions for industrial development in North Hillsboro. Industrial development in the Subareas would be at an advantage being adjacent to the North Hillsboro industrial area, which has become critical to the region and state's sustained economic competitiveness and prosperity.
- **Designating the Subareas for industrial use supports Hillsboro's plans for development in the adjacent IRA.** The City is planning for large-scale industrial development in the IRA and has plans to make substantial investments in transportation infrastructure and utilities in the IRA. Development of industrial uses in the IRA is key to implementing the City's economic development strategy. Designation of the Subareas for industrial uses supports the City's economic strategy by ensuring that future development in the Subareas will be compatible with industrial development in the IRA.
- **The surrounding industrial areas are an advantage for industrial development in the Subareas.** Industrial businesses prefer to locate near other industrial businesses, both for compatibility of uses and to be nearer to customers and suppliers. Redevelopment of the Subareas for industrial uses will minimize use conflicts between the Subareas, the IRA, and industrial area to the west of the Subareas. In addition, the constraints that make the Subareas less attractive for residential development, such as adjacent future industrial development and noise from the Hillsboro Airport, are compatible with industrial uses.
- **Regional and local demand for industrial development on lots of 2 to 15 acres is strong.** Hillsboro's EOA shows that the City has a limited supply of industrial sites in the 2 to 15 acre range, a substantial amount of which is located in the Subareas. The demand for small industrial sites suggests that, if transportation infrastructure and utilities are extended to the Subareas and property owners are willing to sell, redevelopment of the Subarea B could occur relatively quickly (i.e., three to five years after Subarea B has transportation infrastructure and utilities).
- **Designating the Subareas for industrial use provides land for smaller industrial businesses whose products support other regional industrial businesses.** Hillsboro's existing industrial base, as well as the new businesses expected to locate in the IRA, will drive growth of small industrial businesses that support larger industrial businesses. The adjacent IRA north of Waibel Creek has large-lot requirements which may drive demand for smaller lots. Ensuring that the City has sufficient small industrial sites provides places for these support businesses to grow, allowing for development of a wider range of industrial businesses and related support businesses. Opportunities for growth of these smaller industrial businesses is important to Hillsboro's economic development strategy.

The disadvantages to industrial development in the Subareas are:

- **The price of land in the Subareas makes industrial development more challenging.** The price of serviced industrial land in Hillsboro and the region was lower than unserviced land prices in the Subareas because of the existing housing. The costs of developing transportation infrastructure and utilities in the Subareas will add to land prices. The willingness of existing Subarea residential property owners to sell their property at a price-point necessary to support industrial development is unknown.
- **The lack of transportation infrastructure and utilities in the Subareas is a barrier to industrial development.** The costs of extending transportation infrastructure and utilities will increase the cost of land, increasing the likely gap of financial feasibility for industrial development. Industrial development is unlikely to occur before transportation infrastructure and utilities are extended into the Subareas. Redevelopment with industrial uses might occur in three to five years in Subarea B if transportation infrastructures and utilities' investments are made. Without transportation infrastructure and utilities' investments made early in the redevelopment process, Subarea A might take 10 to 20 years (or longer) to redevelop into an industrial district.
- **Property owners in the Subareas may be opposed to conversion of the Subareas to industrial uses.** Designation of the entire Subareas for industrial uses may face opposition from land owners. Property owners in Subarea A may be especially concerned because some have made large investments in their homes and some have lived in the Subareas for a long time. This could lead to disinvestment for the existing residential over the long term. Even in Subarea B, that has been designated for industrial uses since 2008, the City might need to proactively acquire and consolidate properties for industrial use to move toward implementation.

3.3 Residential Development Considerations

Appendix C presents information and the opportunities and constraints for residential development in the Subareas. This section presents the conclusions of that analysis.

The 2016 Hillsboro Housing Needs Analysis (HNA) concluded that the City had a deficit of capacity to accommodate 1,354 new single-family detached houses forecast to be needed in Hillsboro over the 20-year planning period. The HNA also found that Hillsboro lacks sufficient single-family detached housing of all types, including single-family detached housing on moderate- and smaller-lots (e.g., lots around 5,000 square feet). The City also lacks a substantial base of land for larger single-family detached housing on lots about 7,000 square feet or greater. This City also lacks land suitable for developing one-story housing, which generally requires a larger lot than is typically developed in Hillsboro.

If designated partially for residential and partially for industrial and commercial, developable land in the Subareas has capacity for development of between about 660 and 1,600 single-family detached dwelling units, depending on development densities. If the unconstrained land in

Subarea A is designated for residential uses, it could accommodate between about 530 and nearly 1,300 new dwelling units. If the land within Subarea B located between Waibel Creek and an extended Huffman Street develops for residential uses, it could accommodate between about 130 and 300 new dwelling units.

The advantages for residential development in the Subareas are:

- **The Subareas provide opportunities for residential development to address Hillsboro's deficit of single-family detached housing.** The Subareas could accommodate around 660 single-family detached dwelling units to about 1,600 units, depending on development density and types of housing. Designating all or part of the Subareas for residential development would reduce the deficit of land for single-family detached housing.
- **The types of housing most appropriate for development in the Subareas are primarily single-family detached housing, with some opportunities for duplexes or townhouses.** The existing development pattern, lack of access to transit, and housing market demand suggests that single-family detached housing, with some opportunities for duplexes or townhouses, housing patterns are most appropriate for the Subareas. Development of a mixture of these housing types provides opportunities for development of mixed-income neighborhoods and housing that is affordable to workers in Hillsboro with average to above-average income.
- **The existing development pattern provides opportunities for infill and subdivision development.** The Subareas include about 80 acres on parcels larger than five acres, with two parcels larger than 20 acres. Parcel assembly is common for residential development in the Portland region and the Subareas provide opportunities for parcel assembly.
- **Much of the housing in the Subareas was built before 1980.** Redevelopment of the Subareas for residential uses might include redeveloping some or all of these older houses and possibly of some newer houses. The age of the housing stock in the Subareas may make residential redevelopment easier because many of the older houses are smaller and have lower values than newer houses.
- **Residential redevelopment would disrupt existing landowners and residents less than other types of development.** Residential development of the Subareas would take time and construction would cause some disruption to existing residential and landowners. However, industrial would cause greater disruption as the character of the Subareas changes from rural residential to industrial uses.
- **New housing in the Subareas would provide housing near jobs in North Hillsboro.** The Housing Needs Analysis identified a deficit of single-family detached housing in Hillsboro. New residential development in the Subareas would provide opportunities for people to live and work in the North Hillsboro area, decreasing commuting from within the City and from within the region.

The disadvantages to residential development in the Subareas are:

- **Residential development may negatively impact North Hillsboro industrial area recruitment and retention.** Standard industrial operational impacts include truck traffic from shipping and receiving activities, traffic from workers traveling to and from jobs, and, depending on the specifics of the industrial activities, some potential noise and odor from manufacturing. If conflicts arise with adjacent future residential neighborhoods, the reputation of the North Hillsboro industrial area as a good place for industrial development may be negatively impacted, at least in areas adjacent to the residential neighborhoods. Conflicts could also result in limitations to industrial uses on land adjacent to the Subareas, which may discourage businesses from locating or expanding near the Subareas.
- **Residential development in the Subareas will reduce opportunities for small industrial development.** Designating the Subareas for residential will reduce opportunities for small industrial development, including businesses that might provide goods or services needed by other businesses in Hillsboro.
- **Transportation infrastructure and utilities' costs may substantially increase development costs in the Subareas.** The costs of extending transportation infrastructure and utilities into the Subareas for residential development would impact housing prices. Some types of housing may become financially infeasible when transportation infrastructure and utilities' costs are accounted for, such as cottage housing or townhouses.
- **Developing mitigation measures to ensure compatibility with nearby industrial areas will increase development costs.** Residential developers paying the costs for mitigation measures will increase development costs and be reflected in higher housing costs. Depending on the costs of mitigation, the increased costs may make some types of residential development (such as cottage housing or townhouses) less financially feasible by driving sales prices above market rates.

3.4 Commercial Development Considerations

Appendix D presents information and the opportunities and constraints for commercial development in the Subareas. This section presents the conclusions of that analysis.

The considerations for commercial development in the Subareas are:

- **The Subareas offers some limited opportunities for development of a small commercial node.** Commercial development opportunities in the Subareas are limited to small-scale commercial uses, such as restaurants or retail to serve nearby residential or industrial employees, by Metro Title 4, which seeks to limit the types and scale of non-industrial uses in Industrial Areas.
- **Development in the Subareas is not likely to be sufficient to support development of a commercial node alone.** Demand for commercial services will be driven by

employment development in the adjacent industrial areas. Uncertainty about future industrial or retail development makes the timing and type of commercial development uncertain. For example, it is uncertain when industrial development will begin to occur, what businesses will move into the adjacent industrial areas, the number of employees they will have, and their hours of operations.

- **The location most appropriate for a commercial node is at the future intersection of Sewer Avenue and Huffman Street.** This location would include connections within the Subareas, the IRA, and the industrial areas to the west.
- **Timing of commercial development is uncertain.** The timing of industrial or residential development in the Subareas, with extension of Huffman Street, is uncertain. The commercial node cannot develop before the transportation infrastructure and utilities' investments have created an intersection at Sewell Avenue and Huffman Street. Commercial development is likely to occur after redevelopment occurs in the Subareas.

4 Recommendations

Hillsboro has a limited supply of industrial land and an identified deficit of residential land for single-family housing. This study evaluated opportunities for development of the Subareas for industrial and residential uses, with a small amount of commercial development.

The City's development policies for North Hillsboro is to grow industrial employment in North Hillsboro. Employment growth in the North Hillsboro Industrial Renewal Area, and in the Jackson East Project Area to the west of Subarea B, is a key part of Hillsboro's economic development strategy and have city, regional and statewide importance for economic growth. The City has made and is planning to make considerable investments to support industrial employment in North Hillsboro. If the UGB would be expanded into a re-designated urban reserve to the west of Subarea A for future employment then the Subareas would become completely surrounded by industrial uses. This would increase the chances of conflicts and compatibility issues for residential uses in the Subareas.

For these reasons, ECONorthwest recommends that the City designate Subarea A for industrial use and keep the existing industrial designation on Subarea B. This decision would protect North Hillsboro industrial area branding and should reduce potential conflicts that could negatively affect business recruitment and retention. These considerations outweigh the creation of additional housing units in this location. The Subareas may also provide more opportunities for development of businesses on small and mid-sized sites, fulfilling a land need identified in Hillsboro's Economic Opportunities Analysis from 2016.

5 Next Steps

Among other elements, the forthcoming Subareas Master Plan should explore site assembly and the integration of transportation infrastructure and utilities between North Hillsboro industrial area, the Subareas, and the Jackson East Project Area to the west. The Master Plan should also consider the impact of industrial development on existing land and homeowners in the Subareas. This could include steps to ease the transition of the Subareas' uses from rural-residential to industrial. The forthcoming Implementation Action Plan should clarify the City's role facilitating redevelopment by pursuing separate redevelopment and financing strategies for Subarea A and Subarea B respectively.

Appendix A: Existing Conditions

Buildable Land

The City of Hillsboro developed a buildable lands inventory for the Subareas. The methodology for estimating buildable land in the Subareas was based on the methods used to develop the buildable land inventory in the Housing Needs Analysis and in Metro's "2014 Urban Growth Report." These methods are described in detail in Appendix E.

Exhibit A-1 and Exhibit A-2 show that the Subareas have a total of 325 acres of land. Within the Subareas, 42 acres is constrained, primarily by the flood plains along Waibel Creek and Storey Creek and a power line corridor.

The Subareas have 231 acres of land with development capacity, on a combination of vacant land (land with no substantial development) and partially vacant and infill land (land with existing development, where further development can be reasonably accommodated).

Exhibit A-1. Buildable Land Summary, Acres, Subareas

Source: Washington County, Metro RLIS, and City of Hillsboro GIS data

Category	Subarea A	Subarea B	Total
Total Acres	203	122	325
Constrained Acres	61	33	94
Unconstrained Buildable Acres	142	89	231

The City of Hillsboro differentiates between large and small industrial development opportunities based on parcel size. A large industrial site is 50 acres and larger. A medium industrial site is 15 to 50 acres. And a small industrial site is smaller than 15 acres. Exhibit A-2 on the following page shows that most of the sites in the Subareas are smaller than 15 acres.

Exhibit A-2 also summarizes the 231 acres of land with development capacity by size of tax lot. About 60% of the developable tax lots are smaller than two acres, accounting for 25% of developable land. About one-third of tax lots and 40% of developable land is on tax lots 2 to 5 acres. Tax lots 5 to 15 acres account for 6% of tax lots and more than 15% of developable land. There are two tax lots larger than 15 acres, accounting for nearly 20% of developable land

Exhibit A-2. Buildable Land by Tax lot Size, number of developable tax lots and number of developable acres, Subareas

Source: Washington County, Metro RLIS, and City of Hillsboro GIS data

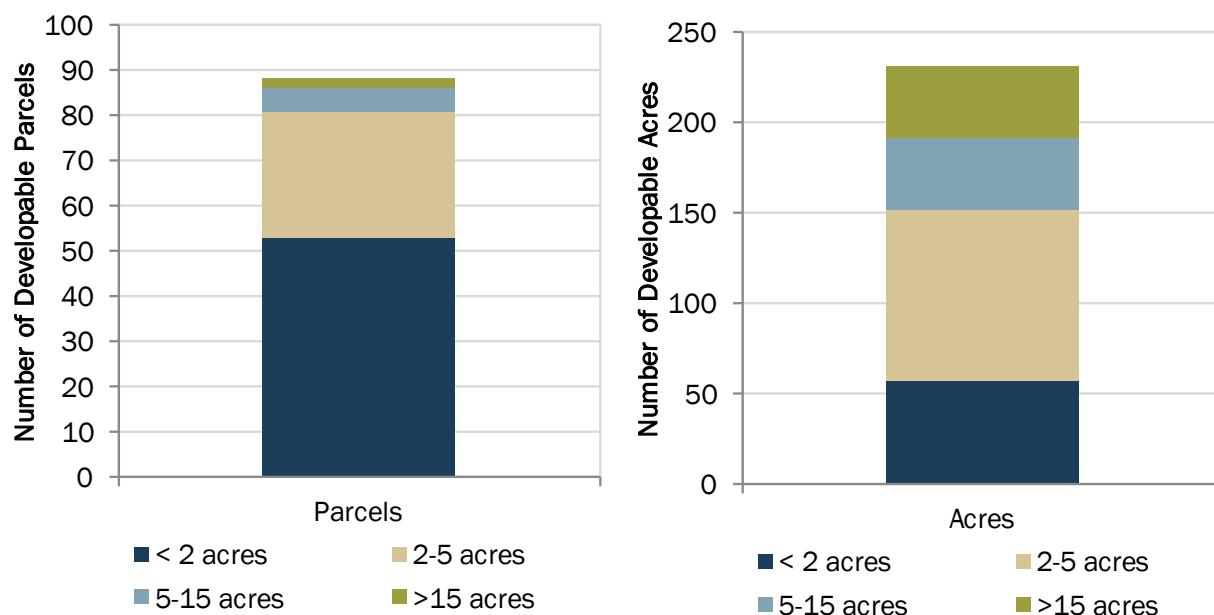


Exhibit A-3 on the following page shows buildable land in the Subareas by potential development status. It categorizes land within the area into the following categories:

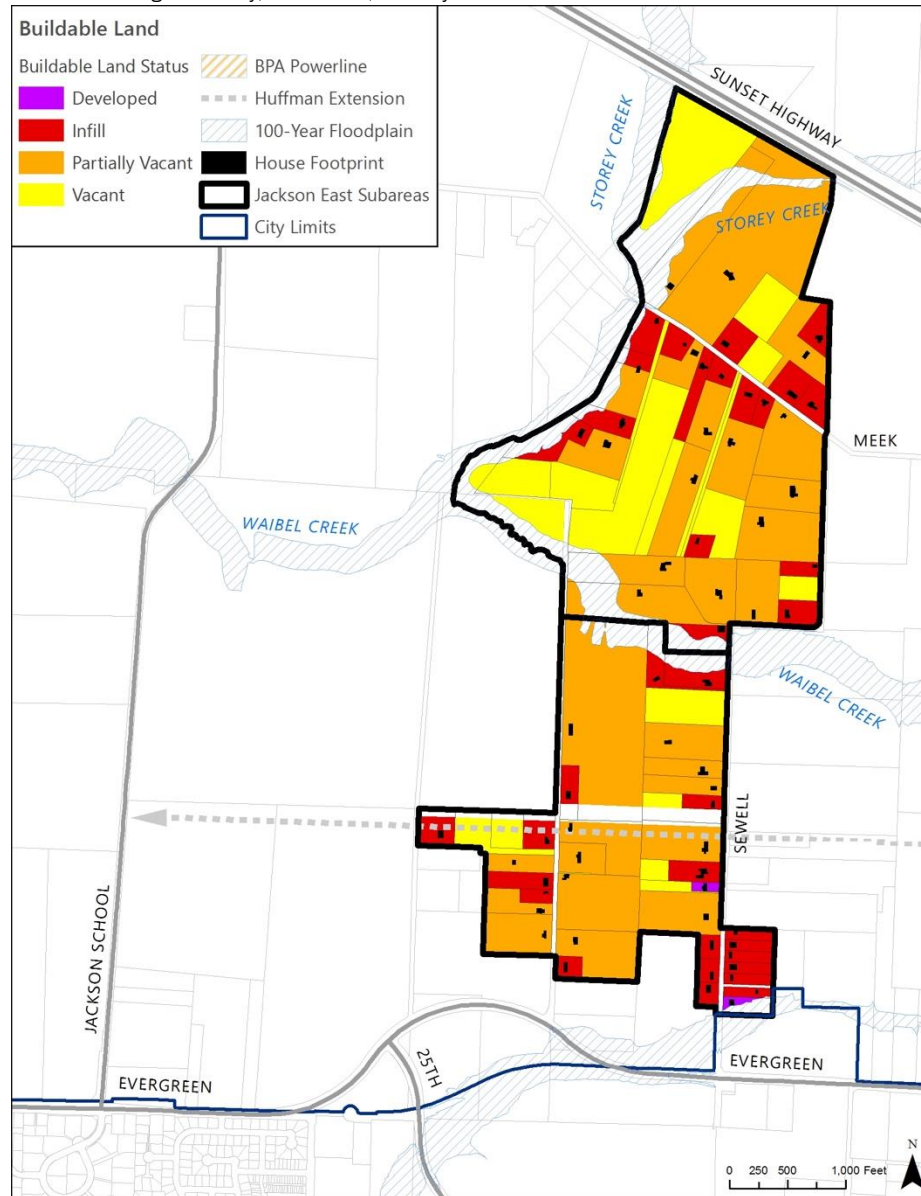
- **Vacant** land has no improvements (e.g. a house) or an improvement with a value of less than \$20,000.
- **Partially vacant** land has an existing house and is larger than two acres. Partially vacant assumes the current house will remain, but there is sufficient land to subdivide for additional uses. Alternatively, partially vacant land may be entirely redeveloped by new development.
- **Infill** land has an existing house and is smaller than two acres where there is additional development potential. Infill assumes the current house will remain, but there is sufficient land to subdivide for additional housing.
- **Developed** land is land with an existing house where there is no additional capacity to develop additional housing.

Although Exhibit A-3 shows potential development capacity on most tax lots in the Subareas, future development will depend on landowner preferences for development and availability of infrastructure. It is likely that some tax lots shown as having development potential Exhibit A-3 may not develop over the next 20 years.

This analysis considered potential industrial and residential development in the Subareas over the next 20-years.

Exhibit A-3. Buildable Land Map, Subareas

Source: Washington County, Metro RLIS, and City of Hillsboro GIS data



The Subareas have two sites larger than 15 acres and 86 sites smaller than 15 acres, most of which are smaller than two acres. In the absence of developers or businesses being willing to assemble parcels many small parcels (those less than 2 acres), it is reasonable to expect that 35 to 60 businesses might locate within the Subareas on existing parcels. If developers or businesses are willing to assemble more parcels (and more smaller parcels), a reasonable assumption, then the number of businesses locating in Subareas may be on the low end of the estimate (closer to 35), generally on slightly larger sites

(e.g., sites around 5 to 10 acres). It seems unlikely that a developer or business would be likely to assemble a large site (50 acres or more) within the Subareas.

The analysis also considered development capacity for the Subareas for residential development. The capacity analysis assumed a range of potential single-family detached housing under several zones: (1) R-4.5 allows lots of 4,500 to 8,999 square feet, (2) R-7 allows lots of 7,000 to 13,999 square feet and (3) R-10 allows lots of 10,000 to 19,999 square feet. Multifamily housing was not assumed because of these subareas' location on the edge of the metropolitan region and anticipated distance from transit.

If Subarea A is entirely zoned with R-4.5, the area has capacity for 1,286 new dwelling units. If it is zoned entirely with R-7, Subarea A has capacity for 792 new dwelling units. If it is zoned entirely with R-10, Subarea A has capacity for 527 new dwelling units.

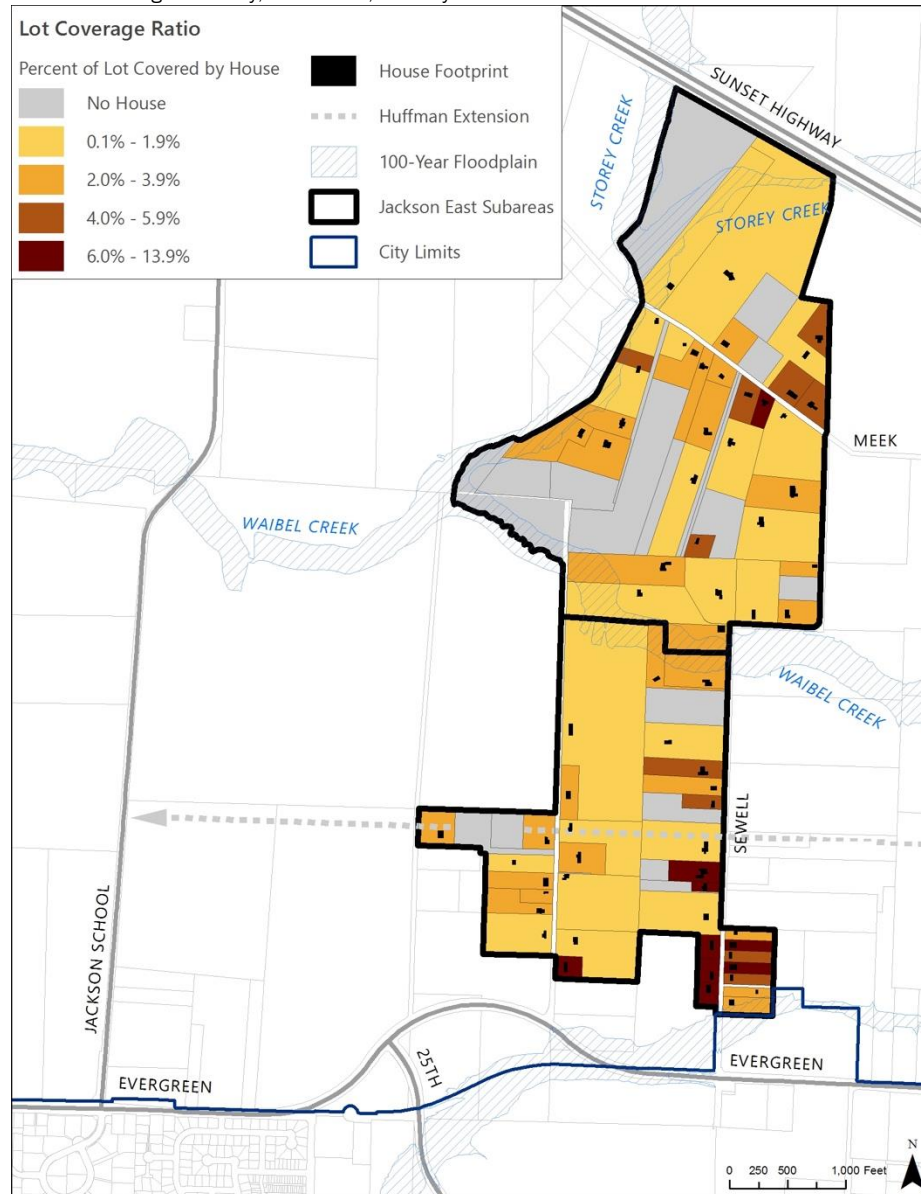
The potential capacity of Subarea B is less clear because Subarea B could include a range of uses, including industrial, residential, and a small commercial node. If the part of Subarea B located between Waibel Creek and the powerline corridor just north of an extended Huffman Street develops under R-4.5 zoning only, this would provide capacity for 322 new dwelling units. This portion of Subarea B would have capacity for 199 new dwelling units under R-7 zoning. With R-10 zoning, this portion of Subarea B could accommodate 133 new dwelling units. The actual capacity of the Subareas to accommodate housing will depend on whether and how much land would be zoned for residential uses and the actual zoning regulations applied to the area.

Existing Residential Development

Exhibit A-4 shows the percent of tax lot area covered by a house, based on the house footprint. The Subareas include 88 tax lots, 67 of which have a house and 21 that do not.

Exhibit A-4. Lot Coverage, Subareas

Source: Washington County, Metro RLIS, and City of Hillsboro GIS data



Most tax lots in the Subareas have relatively small structures, covering less than 6% of the tax lot. Subarea A is mostly comprised of lots with either no building or building footprints covering under 2% of the lot. However, there are some tax lots with higher lot coverage, between 2 and 6%, and one lot with a house that covers 6% or more of the total lot area. While there are still many low-coverage lots in Subarea B, there are many more lots with a higher lot coverage, particularly in the southeast corner of the Project Area. This is largely due to the smaller lot size.

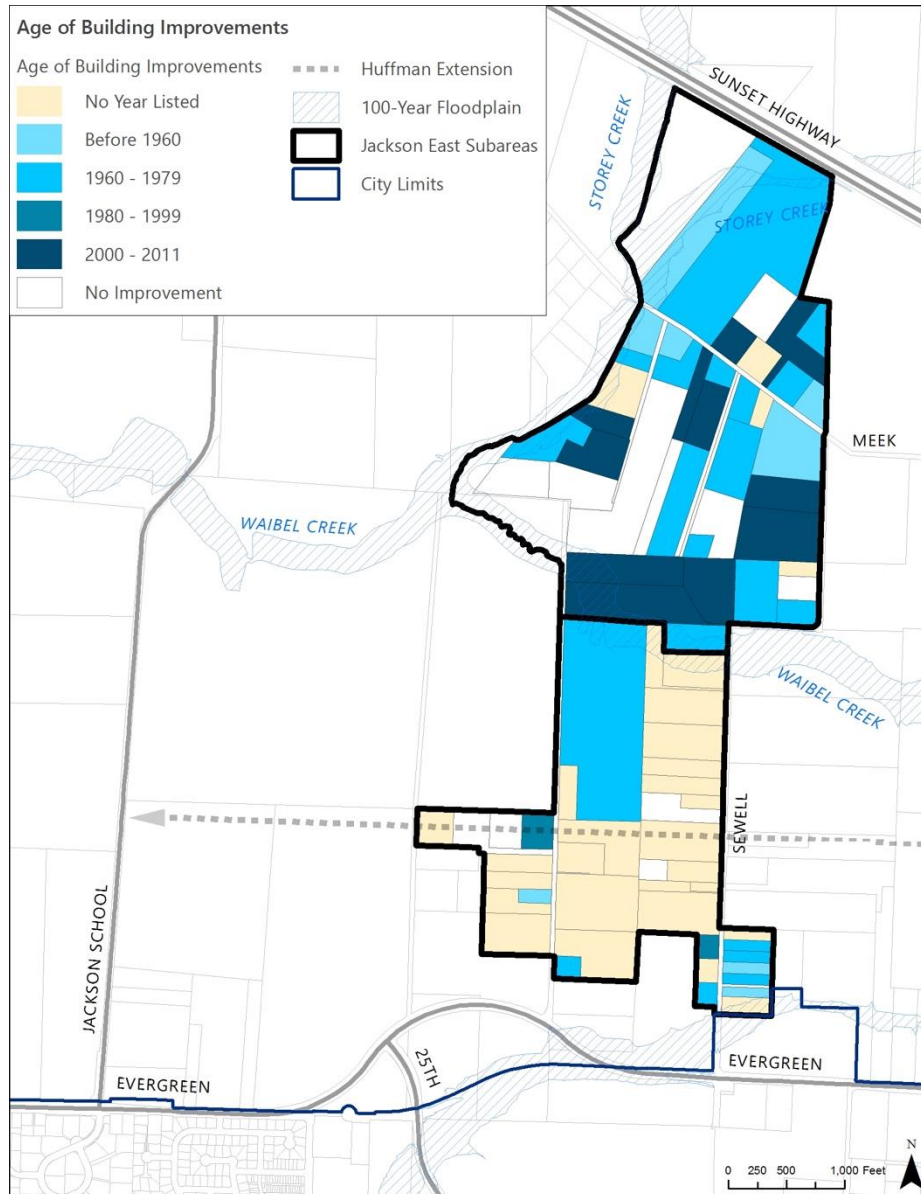
The low lot coverage indicates opportunities

for infill and development of additional housing in Subarea A and portions of Subarea B.

Exhibit A-5 shows tax lots by age of improvements, or age of houses, in the Subareas. The structures in the Subareas are of varying ages, ranging from being built before 1960 to being built after 2000. About 40% of the houses in the Subareas were built prior to 1980 and about 20% (13 houses) were built between 1981 and 2011. Washington County Assessment and Taxation data does not list a house age for the remaining 26 houses in the Subareas.

Exhibit A-5. Age of Improvements (Houses), Subareas

Source: Washington County, Metro RLIS, and City of Hillsboro GIS data



Age of existing housing may be an indicator of redevelopment potential. Housing built since 2000 is less likely to redevelop over the next 20 years. However, parcels with houses built since 2000 may subdivide and have residential infill development, if additional residential development is allowed in the Subareas.

Older housing, such as housing built prior to 1980 (and especially housing built prior to 1960) may be more likely to redevelop. Age of housing, however, is not necessarily a strong indicator of redevelopment potential. The decision to redevelop depends largely on property-

owner preferences for development and redevelopment.

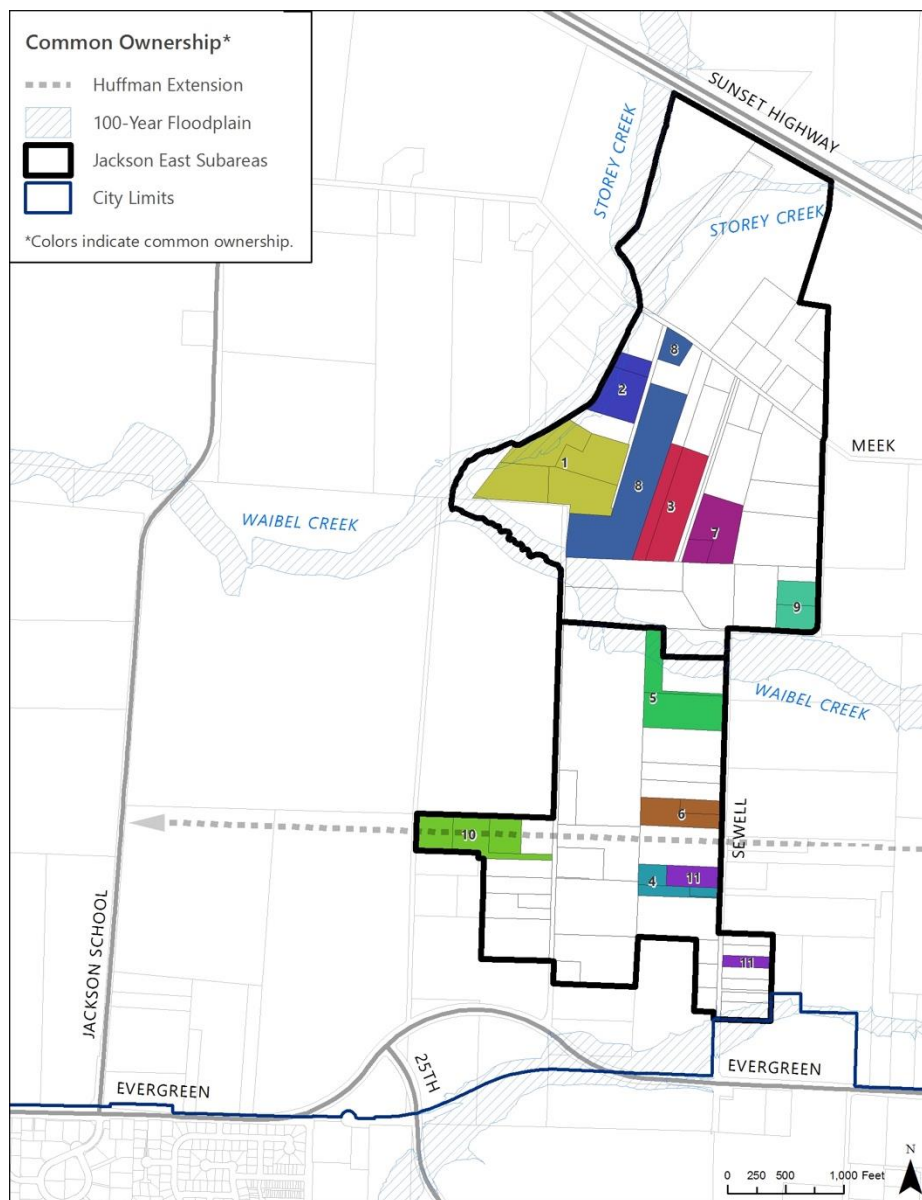
The 11 newest structures, built from 2000 to 2011, were all built in Subarea A. Most other houses in Subarea A were built prior to 1980. In Subarea B, the age of structure was not available for most houses. Where age is known, most structures in Subarea B were built prior to 1980.

Ownership is an important consideration in redevelopment of the Subareas. Exhibit A-6 instances of two or more tax lots in the same ownership in the Subareas. Exhibit A-6 shows that ownership in the Subareas is diverse, with 11 instances where two to four tax lots are in the same ownership.

The ownership pattern in the Subareas shows that the area has diverse ownership, with no concentration of ownership. The Subareas two larger tax lots are a little over 20 acres. When combined, the largest contiguous common ownership is less than 12 acres.

Exhibit A-6. Common Ownership, Subareas

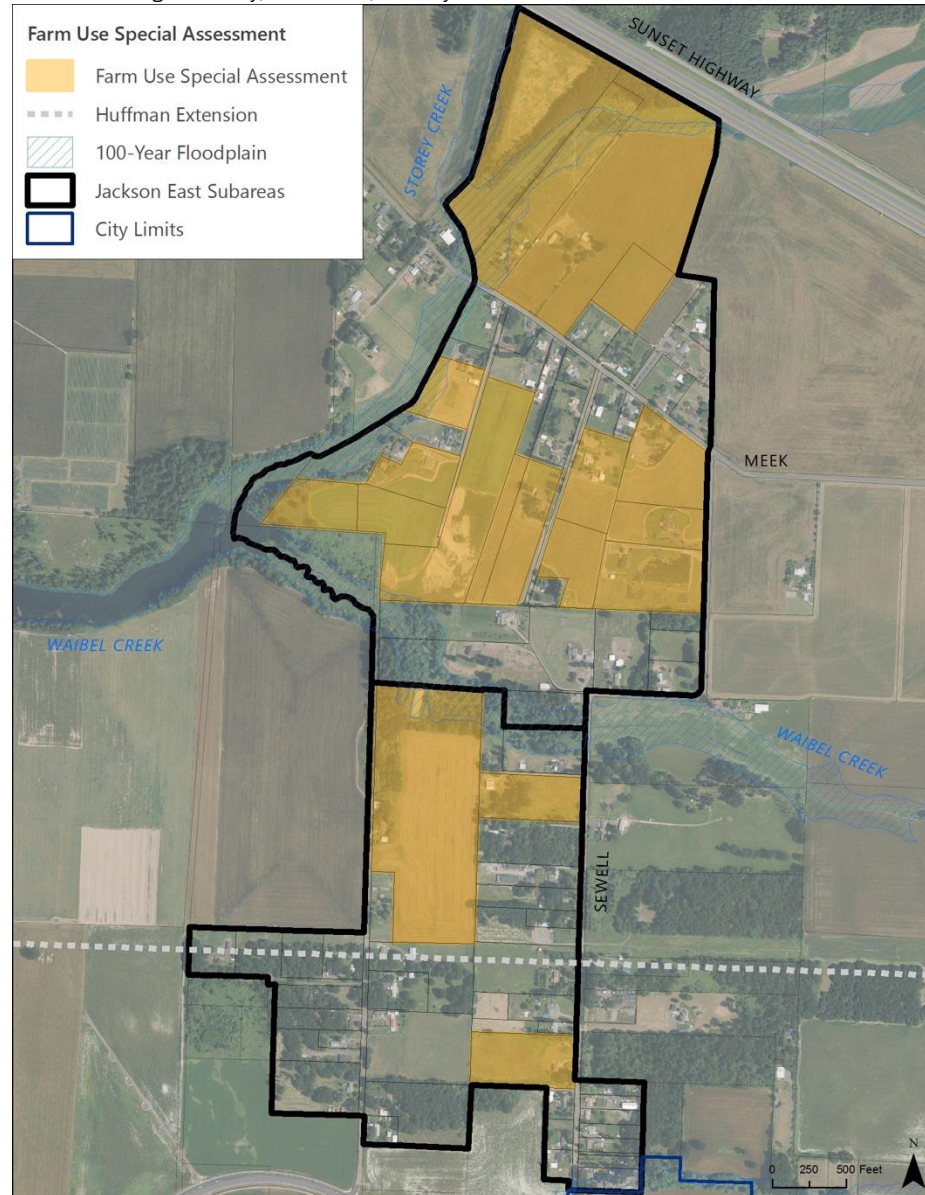
Source: Washington County, Metro RLIS, and City of Hillsboro GIS data



The Subareas were historically used for agriculture with agricultural uses continuing to the present day. Exhibit A-7 shows properties with current farm use special assessment deferrals in the Subareas. Eligible properties are “used for qualifying farm use,” and are specially assessed to reflect the value of the property’s agricultural value instead of other uses that may support a higher assessed value. The purpose of the special assessment is to incentivize property owners to maintain agricultural use of the land.

Exhibit A-7. Land in Farm Use Special Assessment, Subareas

Source: Washington County, Metro RLIS, and City of Hillsboro GIS data



Nineteen properties are in farm use special assessment, accounting for half of the land in the Subareas. Larger tax lots are more likely to be designated for farm use special assessment. The majority of the Subareas’ properties on farm use special assessment are found in Subarea A.

Development, or redevelopment, generally occurs in areas where development is financially feasible based on: (1) the costs of land, transportation infrastructure, public utilities and services, and construction, and (2) the rent or lease rates that businesses are willing to pay. Broadly speaking, when revenue from rent or leases exceed the costs of land, transportation infrastructure, public utilities and services, and construction, development is said to be financially feasible. The value of existing housing and land values are an important consideration in evaluating opportunities for redevelopment of the Subareas. Throughout this report, we consider known information about land and existing housing, as well as transportation infrastructure, public utilities and services' costs, in the context of market prices for land.

Exhibit A-8 and Exhibit A-9 (on the following page) show the value of improvements, or houses, in the Subareas.² In Exhibit A-9, darker colors indicate higher value improvements. Lighter colors indicate tax lots with lower improvement values. Improvement values ranged from less than \$100,000 to values above \$500,000.

More than three-quarters of tax lots with houses have an improvement value of less than \$250,000. Tax lots with lower improvement values, especially tax lots bigger than two acres, may present infill or redevelopment opportunities. Houses with lower improvement value may be more likely to redevelop, rather than become part of an infill neighborhood. This is especially true where several tax lots with these characteristics are adjacent.

Exhibit A-8. Summary of Improvement (Houses) Value, Subareas

Source: Washington County, Metro RLIS, and City of Hillsboro GIS data

Note: Tax lots with an improvement value of zero are not shown in this table.

	Number of Houses
Less than \$100,000	20
\$100,000 to \$149,999	16
\$150,000 to \$249,999	20
\$250,000 to \$399,999	9
\$400,000 to \$518,230	6

The combined value of land and improvements (housing) in the Subareas with existing housing averages around \$340,000 per acre. The maximum value of land and improvements in the Subareas is about \$860,000 per acre.³

² Improvement value is based on real market value in the Washington County Assessment and Taxation database. Real market value often under represents the value of housing prices at time of sale, including the Washington County Assessment and Taxation database.

³ This average is based on data from the Washington County Assessment and Taxation database only include parcels with development on them. The Assessor may not have re-assessed land and improvement values since parts of the Subareas were brought into the Metro UGB. If so, then this average value of land and improvements is likely low.

Exhibit A-9. Improvement (Houses) Value, Subareas

Source: Washington County, Metro RLIS, and City of Hillsboro GIS data

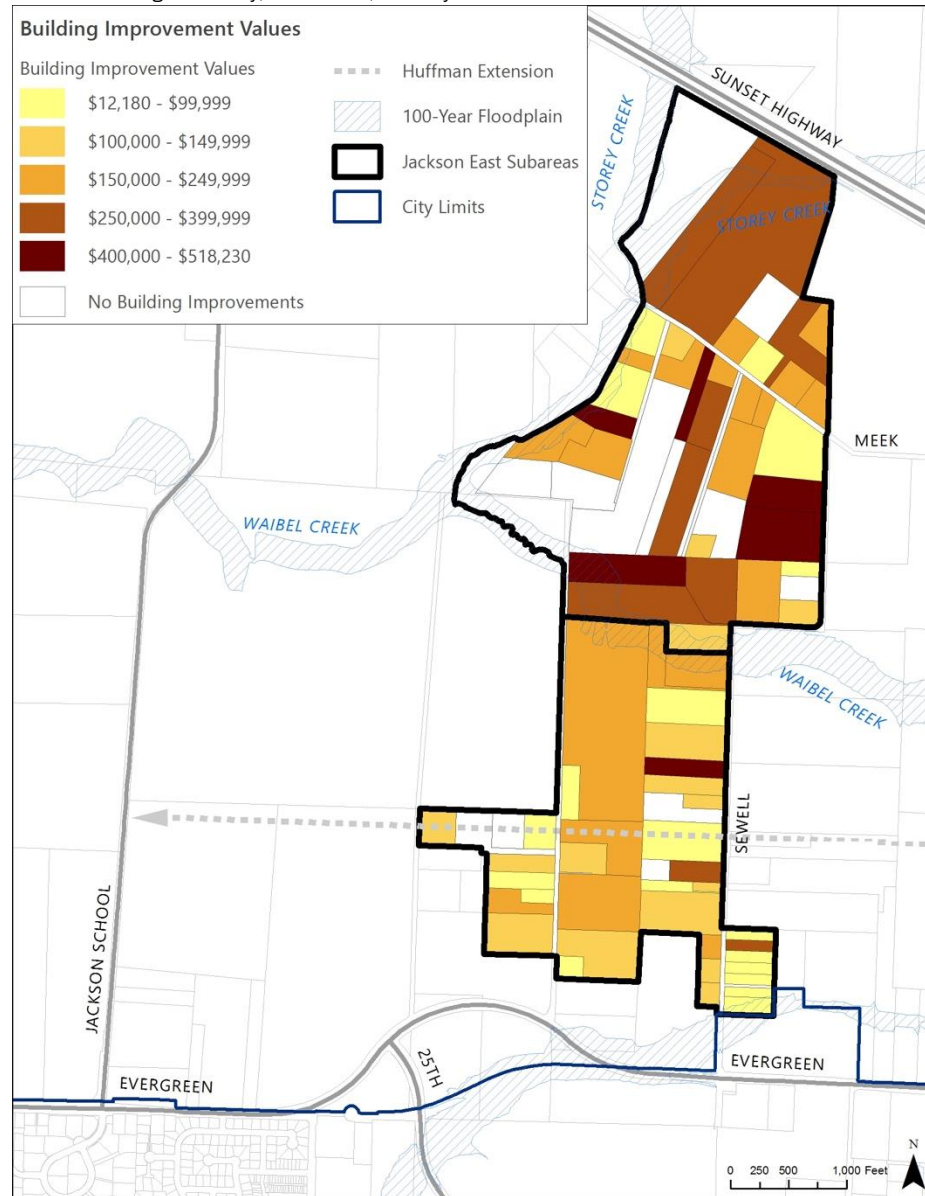
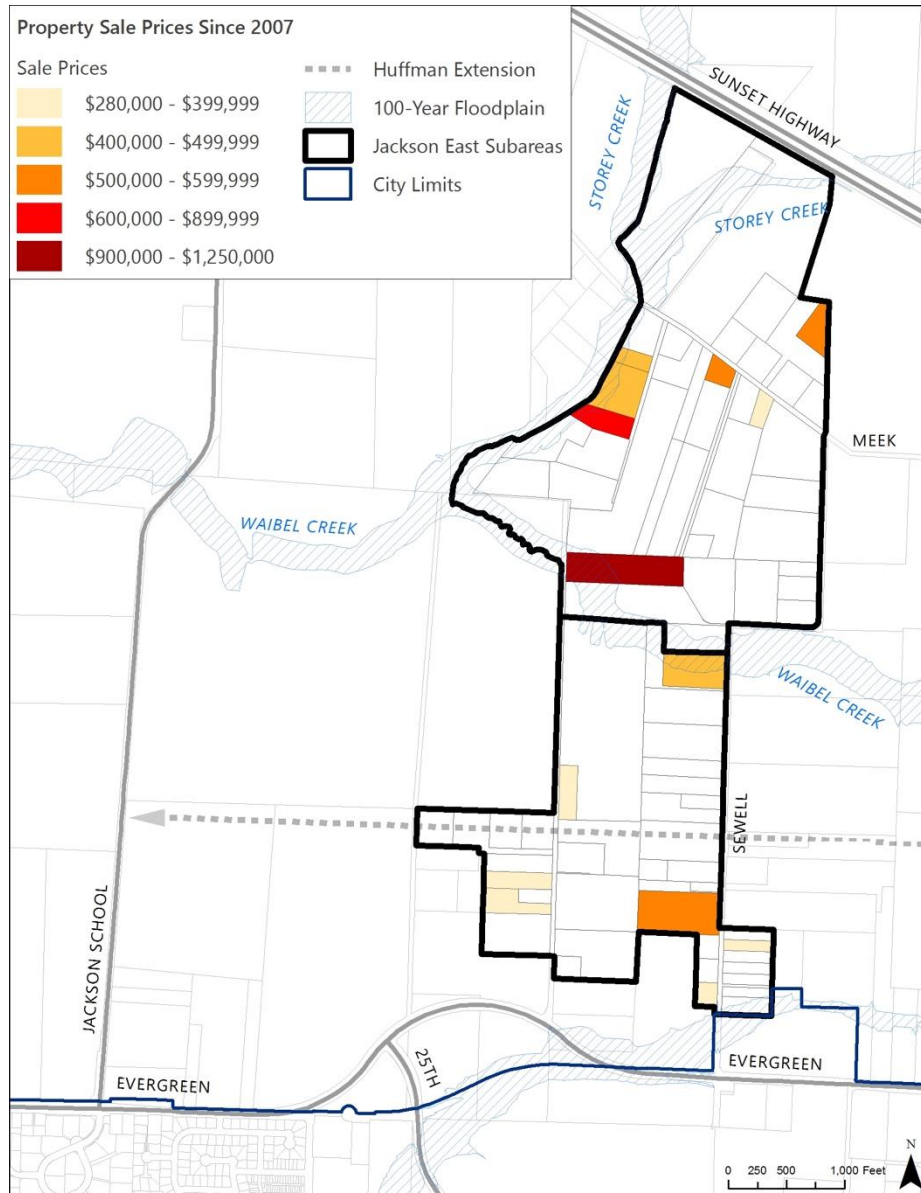


Exhibit A-10 shows the sales price for properties sold since 2007. Fourteen properties in the Subareas sold between 2007 and 2015, for prices ranging from \$280,000 to \$1,250,000. The house that sold for \$1,250,000 is one of the larger houses and more recently built homes in the area.

Exhibit A-10. Sales price for properties sold since 2007, Subareas

Source: Washington County, Metro RLIS, and City of Hillsboro GIS data



For comparison, the average home sales price in Hillsboro in June 2016 was \$328,500.⁴ Seven of the properties sold had a price less than \$500,000 and five had a price above \$500,000.

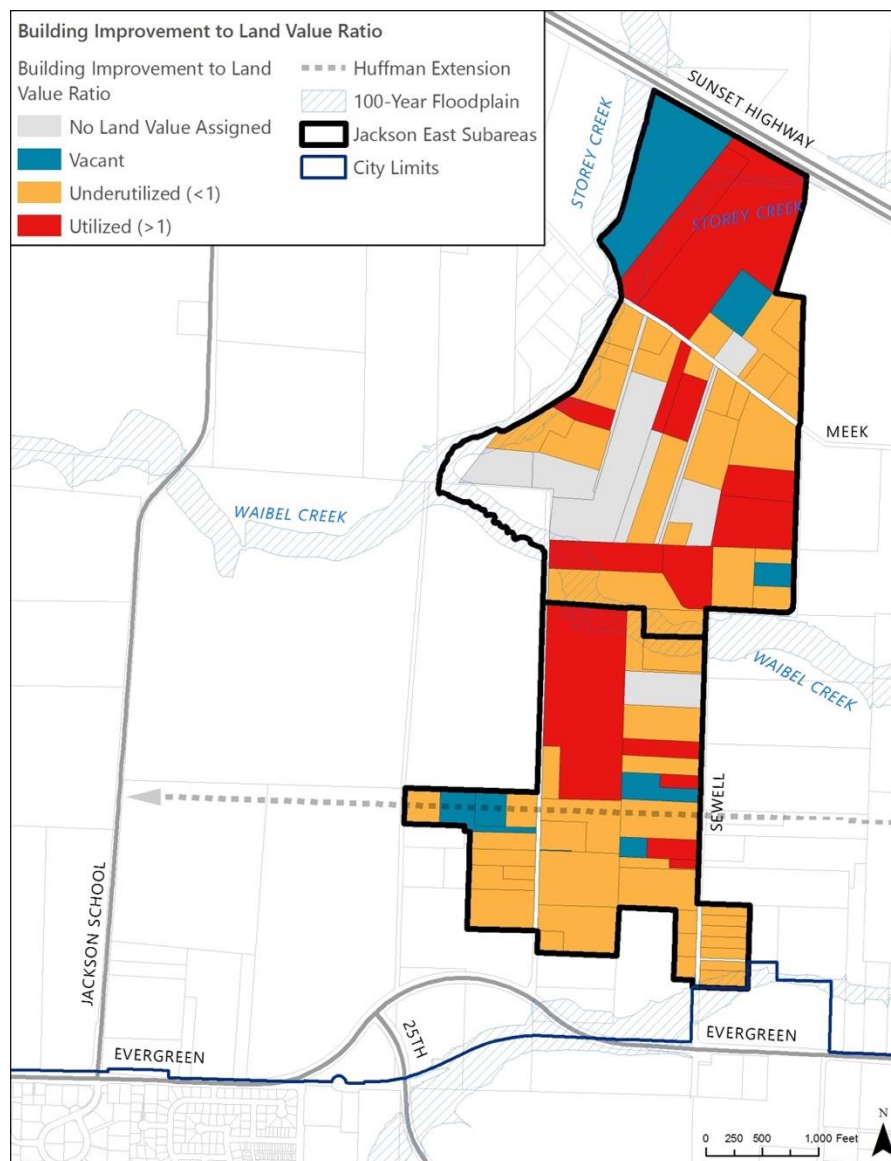
These properties ranged in size from 0.7 acres to nearly six acres. On a per-acre basis, sales prices ranged from \$100,000 per acre (for the nearly six-acre property) to \$600,000 per acre (for the 0.7-acre property). This suggests that the value of the house had more effect on sales price than the size of the lot.

⁴ Zillow.com

Exhibit A-11 shows the improvement to land value ratio for each tax lot in the Subareas. Low improvement to land value ratios (ratios under 1) occur when the house (the improvement) has a lower value than the land value. High improvement to land value ratios (ratios above 1) occur when the house has a higher value than the land. The improvement to land value ratio provides some indication of infill opportunities for residential development. Where there is a low improvement to land value ratio, there may be opportunities for residential infill development on lots larger than two acres, or redevelopment on smaller lots, such as those smaller than two acres. New industrial development would happen on vacant land or on land where the existing use is redeveloped.

Exhibit A-11. Improvement to Land Value Ratio, Subareas

Source: Washington County, Metro RLIS, and City of Hillsboro GIS data



The improvement to land value ratio shows that about 80% of the tax lots with a house in the Subareas are underutilized. These tax lots range from half an acre to nearly eight acres in size.

The remaining tax lots have an improvement to land value ratio indicating they are fully utilized. These tax lots range in size from half an acre to 26 acres in size. This includes nine tax lots larger than two acres, including one 22-acre tax lot and one 26-acre tax lot. These larger tax lots, especially the largest two tax lots, likely do have capacity to accommodate additional housing. The improvement to land value ratio is low on some of these tax lots, especially the largest tax lots, because the land

value is estimated as being low, often because the tax lots are in Farm Use Special Assessment (see Exhibit A-7).

Industrial Uses

The primary existing uses in the Subareas are residential, as discussed in the prior section. Preliminary analysis suggests that Subarea B may have four properties with small-scale, industrial uses. Three of the properties are about one acre and the other property is two acres.

The apparent small-scale, industrial uses on these tax lots include storage of vehicles, machinery, and substantial non-residential structures. These industrial uses are not clearly connected with other industrial businesses in Hillsboro.

Hillsboro Airport

The Hillsboro Airport, the second busiest general aviation airport in Oregon, is located in close proximity to Subarea B. An ASCO Airport Safety and Compatibility Overlay Zones and an AU Airport Use Zone were adopted into the Hillsboro Zoning Ordinance in 2009. The City-initiated zone changes to apply the AU and ASCO Zones were successfully appealed to the Land Use Board of Appeals. Following that ruling, the City discontinued further work on the AU and ASCO Zones though they still exist on paper in the Zoning Ordinance. The Port of Portland is now beginning the process of updating the Master Plan for the Hillsboro Airport, and the City will be a major participant in that process. It is anticipated that the City will rewrite both the AU and ASCO Zones' language during or following the Hillsboro Airport Master Plan update underway.

The Hillsboro Airport could impact future residential development in Subarea B, especially in the southern portion of the subarea. Exhibit A-12 on the following page shows the extent of the ASCO Zones on the Subareas and the restrictions of each zone are described below.

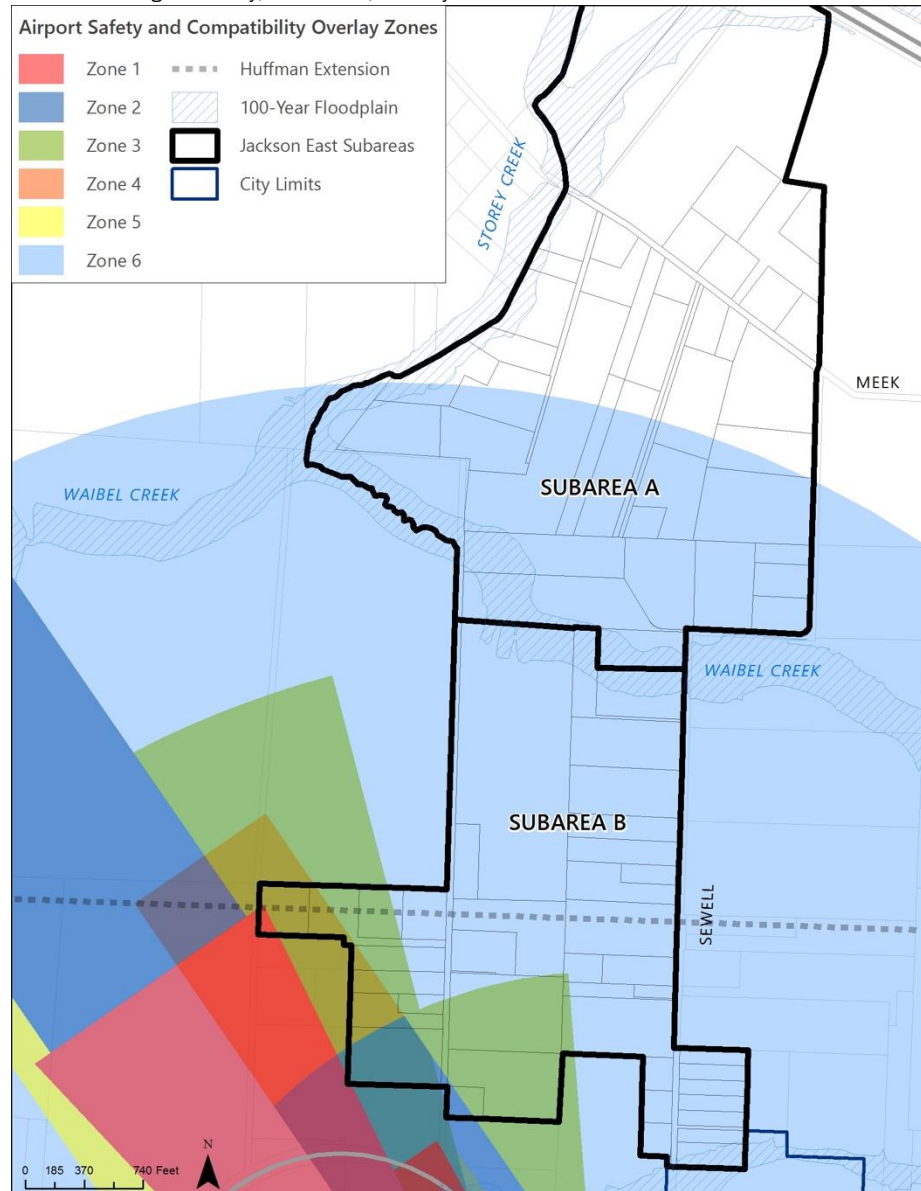
- **Compatibility Zone 1: Runway Protection Zone.** Very little of Subarea B is within this zone. It prohibits most development, including residential, commercial, industrial, and institutional land uses. Roads and parking lots are permitted if no alternatives exist.
- **Compatibility Zone 2: Inner Approach/Departure Zone.** Very little of Subarea B is within this zone. It prohibits increases in residential density and some commercial uses such as commercial childcare facilities; schools; hospitals, commercial senior or convalescent care facilities. A maximum of 60 people per gross acre, on average, and 120 people on any single gross acre is permitted for nonresidential development.
- **Compatibility Zone 3: Inner Turning Zone.** Portions of the southern part of Subarea B are in this zone. It prohibits some commercial uses such as commercial childcare facilities; schools; hospitals, commercial senior or convalescent care facilities. A maximum of 100 people per gross acre, on average, and 200 people on any single gross acre is permitted for nonresidential development.
- **Compatibility Zone 4: Outer Approach/Departure Zone.** Small portions of the southwestern part of Subarea B are in this zone. It prohibits increases in residential density and some commercial uses such as commercial childcare facilities; schools; hospitals, commercial senior or convalescent care facilities. A maximum of 100 people

per gross acre, on average, and 300 people on any single gross acre is permitted for nonresidential development.

- **Compatibility Zone 5: Sideline Zone.** None of the Subareas are within this zone. It prohibits increases in residential density and some commercial uses such as commercial childcare facilities; schools; hospitals, commercial senior or convalescent care facilities. A maximum of 150 people per gross acre, on average, and 300 people on any single gross acre is permitted for nonresidential development.
- **Compatibility Zone 6: Traffic Pattern Zone:** All of Subarea B and the southern portion of Subarea A are within this zone. It prohibits schools, hospitals, commercial senior or convalescent care facilities. There are no limitations on employment intensity, and increases in residential densities may be approved if certain safety and compatibility standards are met.

Exhibit A-12. Airport Safety and Compatibility Zones, Subareas

Source: Washington County, Metro RLIS, and City of Hillsboro GIS data



Appendix B: Industrial Development Considerations

As was described in Chapter 1, the Jackson East Project Area and adjacent rural-residential land along Sewell Avenue were brought into the UGB for employment uses. The Subareas fall within the Metro Title 4 Map's Industrial Area. Metro Title 4 seeks to provide and protect a supply of sites for employment by limiting the types and scale of non-industrial uses in Industrial Areas. Hillsboro Comprehensive Plan amendments adopted in 2008 designated Subarea B for industrial uses. This industrial development opportunities in this chapter focuses on industrial development opportunities in the two Subareas.

The City of Hillsboro differentiates between large and small industrial development opportunities based on parcel size. A large industrial site is 50 acres and larger. A medium industrial site is 15 to 50 acres. And a small industrial site is smaller than 15 acres. All but two sites in the Subareas are smaller than 15 acres. As a result, this analysis considers opportunities for development of industrial development on small parcels, as well as opportunities for development of industrial on medium-sized sites, on the two parcels larger than 15 acres or through aggregation of lots into sites larger than 15 acres.

The City of Hillsboro's draft Economic Opportunities Analysis (EOA) identified unmet employment land need in Hillsboro for the 2015 to 2035 period. Key conclusions of the EOA relevant for evaluating industrial development opportunities in the Subareas are:

- **Target industries.** The EOA identifies a range of potential target industries for Hillsboro. Specifically, industrial target industries such as micro electronics, electronic medical devices, semiconductors, other electronics, software and media, food processing, data center, biotechnology, distribution, and incubator.
- **Site requirements.** The EOA shows that a range of site sizes are needed for each of the target industries listed above. Some businesses in the target industries will need sites starting at 5 acres (except data centers, with sites starting at 10 acres). These types of sites can be found in the Subareas.
- **Supply of small and mid-sized industrial sites.** The EOA shows that Hillsboro has the following supply of small industrial sites in buildable land: (1) 114 parcels and 104 net buildable acres on tax lots smaller than two acres, (2) 112 parcels and 335 net buildable acres on tax lots on two to five acres, and 50 parcels and 283 net buildable acres on tax lots on five to ten acres. Hillsboro also has the following medium-sized parcels: (1) 31 parcels and 683 net buildable acres on tax lots 10 to 20 acres and (2) 28 parcels and 288 net buildable acres on tax lots 20 to 50 acres.

As part of this analysis, ECONorthwest spoke with several private developers in the Portland region to better understand industrial development opportunities in the Subareas.⁵ ECONorthwest asked about developing industrial businesses on sites of 2 to 15 acres in size. Industrial developers identified opportunities for development in the Subareas. Discussions with all of the developers included the following input:

- Developers agree that the large-lot industrial development in the areas surrounding the Subareas is an advantage for industrial development in the Subareas. There is regional and local demand for industrial development sites in the 2 to 10 acre range, as well as for site around 15 acres and larger. Demand for individual parcels smaller than 2 acres is more limited. There is a shortage of development-ready 2 to 15 acre industrial sites in the Portland region.
- The location of the Subareas is an advantage for industrial development. The proximity to employment centers is appealing, as it provides opportunities for development of industrial businesses near other industrial business. The proximity and access to Highway 26 is also appealing because it provides quick access to the regional transportation network.
- The ownership pattern and irregular shapes of the parcels in the Subareas is a challenge but one that could be solved over time through parcel assembly. Demand for small sites for industrial is predominantly for sites over 2 acres. Given that 60% of the parcels in the Subareas are smaller than 2 acres, industrial development would require substantial parcel assembly, both of parcels smaller than 2 acres but also of the 2 to 5 acre parcels and possibly with the 5 to 15 acre parcels.
- Land costs in the Subareas may be a barrier to redevelopment of the area for industrial. Small parcels with high-value housing may be the largest impediment to the financial feasibility of redevelopment, especially early in the redevelopment process when there is little industrial development in the Subareas. The average value of taxlots with housing is \$340,000 per acre.

Developers reported that land prices for small vacant serviced industrial parcels in the Portland region are between \$5 per square foot to \$7.75 per square foot, or about \$220,000 to \$340,000 per acre. These prices are for land with complete transportation infrastructure, public utilities and services, which is lacking in the Subareas.

- The lack of transportation infrastructure, public utilities and services in the Subareas is a barrier to industrial development. Adding transportation infrastructure, public utilities and services' costs onto land costs may decrease the financial feasibility of industrial development, at least until the regional costs of industrial land increase. If the Subareas develop with many small and medium-sized companies, no one business will be able to pay the costs of extending transportation infrastructure, public utilities and services on

their own. It is reasonable to expect the industrial development in the Subareas to occur gradually, over the course of several years. The City may need to consider approaches to paying for transportation infrastructure, public utilities and services that allow businesses to pay as they develop or over time, such as a local improvement district or late-comer fees.

Given the lack of transportation infrastructure, public utilities and services in the Subareas, existing rural-residential development pattern, and the higher cost of land in the Subareas, redevelopment of the Subareas for industrial may take 10 to 20 years. The length of time for redevelopment will depend on numerous factors, including the availability of transportation infrastructure, public utilities and services, the City's role (if any) in helping to pay for infrastructure, and the pace of national and regional economic growth.

Redevelopment of the Subareas from rural residential to industrial may be challenging because of potential objections from existing residents. If the City wants to promote redevelopment for industrial uses, City may want to limit new residential development through zoning. The City may want to work with existing residents on plans to redevelop the area to minimize disruption to existing residents.

Factors that support industrial development

The Subarea present the following factors provide opportunities for development of industrial uses:

- **Demand for industrial sites in the Subareas.** Regional demand for industrial sites is strong across the Portland region but especially in Hillsboro. Given Hillsboro's existing industrial base, developers suggest that once transportation infrastructure, public utilities and services are in place, the Subareas could redevelop with industrial development within three to five years. The challenges of higher land prices and existing development patterns suggest that redevelopment for industrial might occur at a slow pace.
- **Adjacent development.** The anticipated large-lot industrial development in the adjacent North Hillsboro Industrial Renewal Area would be compatible with -industrial development in the Subareas. There may be some advantages to small and mid-sized businesses in the Subareas, if they do business with nearby larger companies.
- **Airport activity.** The southern portion of Subarea B, such as the areas south of the Huffman Street extension, are most heavily impacted with noise conflicts with the Airport. Airport noise would not substantially impact industrial businesses.

Constraints to industrial development

The Subareas present the following constraints for development of industrial uses:

- **Existing residential uses.** The primary existing use throughout the Subareas is residential development. Appendix A describes existing residential uses. In short, there is a substantial amount of residential development in the area, with larger investments in Subarea A. Homeowner preferences may affect the rate of redevelopment, especially if some homeowners have a strong preference against selling their properties.
- **Land prices.** Recently updated market rate values of land in the Subareas are not available currently, given that the Washington County Assessor does not appear to have re-assessed land in the Subareas recently. The Assessor's data shows that the combined value of land and housing in the Subareas (on parcels with existing housing) averages around \$340,000 per acre. The maximum value of land and improvements in the Subareas is about \$860,000 per acre.⁶

Recent sales prices for housing in the Subareas show that sales prices ranged from \$100,000 per acre (for the nearly six-acre property) to \$600,000 per acre (for the 0.7-acre property). While these prices are an indicator of recent sales prices, they do not provide direct information about the potential price of parcels in the Subareas if they were sold for industrial uses. They do reinforce the supposition that larger tax lots with a house, even a high-value house, have a lower per-acre price than smaller tax lots with a house.

According to Co-Star data, land price for industrial land in Hillsboro is \$272,000 per acre, which is consistent with developers' estimates for industrial land prices across the region. In addition, Hillsboro's EOA and buildable lands inventory report that the typical price paid for industrial land in Washington County in 2016 in Washington County peaked at \$6.50 per square foot, or roughly \$280,000 per acre, for land considered "shovel ready" with necessary transportation infrastructure, public utilities and services. The prices of industrial land is considerably below average residential land prices of \$770,000 per acre in Hillsboro.⁷

The relatively low prices for industrial land relative to the higher price for residential land make it more challenging to redevelop residential lots for industrial uses under the current market or without a market intervention. The willingness of existing Subarea residential property owners to sell their property at a price-point necessary to support industrial development is unknown. However, the difference in industrial land prices and land prices in the Subareas may become closer over time, as industrial prices increase and if land prices for residential uses in the Subareas do not increase or increase

⁶ This average is based on data from the Washington County Assessment and Taxation database only include parcels with development on them. The Assessor may not have re-assessed land and improvement values since parts of the Subareas were brought into the Metro UGB. If so, then this average value of land and improvements is likely low.

⁷ Co-Star, September 2016

more slowly as a result of industrial zoning that does not allow new residential development.

- **Lack of transportation infrastructure, public utilities and services.** The costs to extend this transportation infrastructure, public utilities and services will make redevelopment of existing housing to industrial more challenging. As part of the preparation of background reports for this project, OTAK has developed estimates of the costs of transportation infrastructure, public utilities and services to serve the Subareas. The total estimate for transportation infrastructure in the Subareas is about \$59 million.⁸

⁸ Estimated costs for sanitary sewer and stormwater cannot be as easily broken down by Subarea because certain facilities are to serve land within both Subareas or a Subarea(s) and the larger Jackson East Project Area.

Appendix C: Residential Development Considerations

One of the options for development of the Subareas considered in this analysis is residential development in a portion or all of the Subareas. The City of Hillsboro's Housing Needs Analysis (HNA) completed in 2015 identified unmet housing need in Hillsboro for the 2016 to 2036 period. Key conclusions of the HNA that are relevant for evaluating residential development opportunities in the Subareas are:

- **Hillsboro has a deficit of capacity for single-family detached housing.** The City's existing land base, as of 2015, had a deficit of capacity to accommodate 1,354 new single-family detached houses forecast to be needed in Hillsboro over the 20-year planning period. At the time the HNA was completed, the Jackson East Project Area was expected to develop with industrial uses only consistent with these areas UGB expansions for employment.
- **The City wants to decrease commuting within the region by providing opportunities for people who work at businesses in Hillsboro to live in Hillsboro.** The relatively high wages in Hillsboro, the large number of jobs in Hillsboro, and the high rates of commuting suggest that Hillsboro's housing market may not have the types of housing that meet the needs and preferences for well paid workers in Hillsboro. Many of these higher wage jobs are at businesses in North Hillsboro industrial areas that are relatively close to the Jackson East Project Area. Development plans in the North Hillsboro Industrial Renewal Area and for the industrial land east of the Project Area are expected to result in growth of higher wage jobs in North Hillsboro.
- **Hillsboro should ensure that there are opportunities for development of a variety of housing choices.** Hillsboro's existing housing stock provides a variety of housing choices, such as larger-lot single-family housing, smaller-lot single-family housing, and a wide range of multifamily housing options. The types of housing that can be built on Hillsboro's vacant land base are generally moderate- and smaller-lot single-family housing and a wide range of multifamily housing, from duplexes to higher-density apartments and condominiums.

The HNA found that Hillsboro lacks sufficient single-family detached housing of all types, including single-family detached housing on moderate- and smaller-lots (e.g., lots around 5,000 square feet). The City lacks a substantial base of land for larger single-family detached housing on lots about 7,000 square feet or greater, as well as one-story housing, which generally requires a larger lot than is typically developed in Hillsboro. Individual property owners in Subarea A have developed larger single-family detached housing on very large lots over the past 15 years.

The City's new residential Comprehensive Plan policies, which are under development, include policies to address these issues. Key policies include:

- Ensure opportunities to develop an efficient, compatible and balanced mix of housing types and unit sizes at a range of housing prices, rents, and amenities dispersed throughout the city.
- Provide housing opportunities that decrease commuting and lower the combined housing/transportation cost burden for people who live or work Hillsboro.
- Provide opportunities for development of larger single-family housing (on lots about 7,000 square feet or greater).

As part of this analysis, ECONorthwest spoke with several private developers in the Portland region to better understand residential opportunities in the Subareas.⁹ ECONorthwest asked about opportunities for development of housing on typical sized lots (e.g., lots around 5,000 square feet) and for development of larger single-family detached housing on lots about 7,000 square feet or greater. Discussions with all of the developers included the following input:

- The location of the Subareas provides opportunities for residential development. The proximity to employment centers is appealing, as it provides opportunities for residents to live very near to where they work. The proximity and access to Highway 26 is also appealing because it provides quick access to the regional transportation network.
- The existing green spaces, such as Waibel and Storey Creeks, provide potential amenities that make the area more attractive for residential development.
- Developers agree that the large-lot industrial development in the areas surrounding the Subareas is a challenge for developing new neighborhoods but that conflicts can be minimized through mitigation measures on the residential lands, such as landscaped buffers.
- The size of developments that developers are willing to do varies from 10 acres, as part of a multi-phase development, to 100 acres of land. Developers report that parcel assembly is common for this type of development in the region, but that it is important to minimize need for parcel assembly where possible.
- Ensuring that existing property owners are informed and supportive of this type of redevelopment of a rural-residential area is essential to project success.

Discussions with developers of development of housing on typical sized lots (e.g., lots around 5,000 square feet) and development of housing on larger lots (e.g., lots around 7,000 to 10,000 square feet) lead to the following conclusions:

- Developers expressed interest in development of any type of single-family detached housing. Developers may be interested in mixing housing of varying lot size in the same

⁹ The developers we spoke with about opportunities for development housing in the Subarea A were: Michael Anders, director of Land Acquisition at Lennar Northwest; Herb Koss, a developer of larger single-family detached housing on lots about 7,000 square feet or greater in the Portland region; Dennis Pahlisch, founder of Pahlisch Homes; Randy Sebastian, president of Renaissance Homes; and Craig Schnuck and Nicki Munson, Vice President and Land Acquisition Manager with Riverside Homes.

neighborhood, such as large-lot and small-lot single-family detached housing, townhouses, duplexes, or cottage clusters.

- While development of larger lot housing is a small part of the regional housing market (about 5% of the total housing market) demand for large lot single-family detached housing is strong on the west side of the Portland region.
- Infrastructure costs may be an issue, depending on how infrastructure is paid for in the Subareas. Higher system development charges may increase housing price beyond the amount that the market is willing to pay.
- The proximity of the Hillsboro Airport is not a substantial barrier to residential development in North Hillsboro. The types of housing that these developers would build nearer to the Airport would be more modest housing, at lower price points, than in other parts of the Subareas.

Factors that support residential development

The following factors are advantages that support residential development in the Subareas, based on our understanding of the housing market in Hillsboro, research about development opportunities, and discussions with housing developers:

- **Citywide deficit of land for single-family detached housing within the urban growth boundary around Hillsboro.** The Housing Needs Analysis documented a deficit of land for single-family detached housing, including a lack of opportunities for development of larger single-family detached housing on lots about 7,000 square feet or greater.
- **Opportunities for new housing.** Subarea A offers opportunities for single-family detached housing. Discussions with residential developers suggest there is demand for this type of housing in Hillsboro and that the character and amenities of Subarea A may be appropriate a mixture of single-family detached housing on lots ranging from 4,500 square feet to 19,999 square feet, provided that negative impacts of the nearby industrial development are mitigated. Subarea A is a farther distance than Subarea B from the Hillsboro Airport, making it more attractive for development of higher-priced housing. The opportunities for trail and open space connections, natural water features, access to Highway 26, and proximity to well-paying jobs all suggest this area could be competitive for this type of housing.
- **Existing development pattern.** The primary existing use in the Subareas is residential. While this development pattern was not planned, the area offers opportunities for additional residential development without fundamentally changing the primary existing use.
- **Larger and mid-sized parcels.** The Subareas have two parcels larger than 15 acres (one in Subarea A and one in Subarea B) and a number of parcels 5 to 15 acres in size (in various parts of the Subareas). These larger and mid-sized parcels offer opportunities for development, either in smaller areas of 10 to 20 acres or in larger areas through parcel

assembly. Parcel assembly may be easier in some areas, where larger and/or mid-sized parcels are clustered together.

- **Redevelopment opportunities.** The age and lower value of some homes in the Subareas may make some tax lots likely to redevelop, with the existing unit either left on a smaller lot or demolished in favor of new development. Generally speaking, housing in Subarea B is older and has lower values than housing in Subarea A. However, it is reasonable to expect that some of the housing in both subareas will remain through residential redevelopment, either through owner preference or because the housing is new and high value.
- **Infill development.** The large size of many lots in the Subareas provide opportunities for subdivision of lots, while allowing existing housing to remain and become integrated into the new development patterns.
- **Land prices.** Vacant residential land prices in Hillsboro are about \$770,000 per acre. In comparison, average land prices for commercial land are \$602,000 per acre and \$272,000 per acre for industrial land.¹⁰ The value of land and improvements (housing) in the Subareas with existing housing average around \$340,000.¹¹ These high land prices suggest that developing single-family detached housing in a range of lot sizes may be a good use of land, especially in Subarea A.
- **Proximity to employment areas.** The Subareas are a part of the North Hillsboro industrial areas, where much of the city's workforce is employed. The Subareas would provide housing in much closer proximity to employment in these areas than other developing areas in Hillsboro, such as South Hillsboro.
- **Development of the Crescent Park Greenway.** Development of this greenway will provide amenities that support residential development in Subarea A and the northern portion of Subarea B near Waibel Creek.

Constraints to residential development

The following factors present constraints and disadvantages to residential development in the Subareas:

- **Airport noise and restrictions.** Restrictions from the future Airport Safety and Compatibility Overlay Zones to be applied could limit residential development in portions of Subarea B. The Port prefers less future residential in close proximity to the Hillsboro Airport to minimize noise impacts and to limit the potential for loss of life and injury if there is an aviation accident. Such factors may limit opportunities for residential

¹⁰ Co-Star, September 2016

¹¹ The average value of land with housing of \$340,000 is based on Washington County Assessor's data. The Assessor may not have re-assessed land and improvement values since parts of the Subareas were brought into the Metro UGB. If so, then this average value is likely low. The sales price shown in Exhibit A-10 shows that recent sales prices are generally at or above the average value of land and housing in the Assessor's database.

development in the southern portion of Subarea B. This was confirmed in discussions with private developers.

- **Industrial activities in adjacent areas.** The areas to the east and west of the Subareas are expected to develop for industrial uses because they are primarily large-lot vacant or partially vacant land under common ownership that will require little land assembly for future employment development consistent with their UGB expansions. In addition, in the future, the City may support re-designating some rural reserves as urban reserves, such as the rural reserves to the west of Subarea A. These industrial uses may create noise or odors that are in conflict with residential uses. In other parts of the city, there are adjacent residential and adjacent industrial uses and conflicts can arise. Mitigation of noise and odors, through the use of landscape buffers and other mitigation techniques, will be essential to ensuring compatibility between new residential and industrial development. Discussions with the private developers confirmed these concerns.
- **Freight truck traffic.** In addition to issues that arise from on-site activities at industrial sites, freight truck movements to and from industrial areas can present significant challenges for neighboring areas. Freight truck traffic volumes, noise, and air pollution can be an issue even with the cleanest of industrial sites. Should the Subareas become a residential area, truck routes could potentially negatively impact the livability of these new neighborhoods. There may also be additional traffic from workers traveling to and from jobs.
- **Lack of infrastructure.** The lack of transportation infrastructure, public utilities and services is a barrier to redevelopment of the Subareas for residential uses. As part of the Master Planning process for this project, OTAK has developed estimates of the costs of extending transportation infrastructure, public utilities and services into the Subareas. For example, the total estimate for transportation infrastructure in the Subareas is about \$59 million, about \$39 million in Subarea A and \$20 million in Subarea B.
- **Existing housing development, especially higher cost housing.** Development in the area may accommodate existing housing and integrate it into the new development patterns. Some existing housing, including higher cost housing, might be demolished and newer housing developed in its place, depending on land and housing prices.
- **Need for support for new development.** Developing high-quality residential neighborhoods in the Subareas will require assembly of parcels to create areas large enough to support development. Parcel assembly can be challenging, especially with a large number of owners. Focusing on assembly around large parcels, or a few moderate sized parcels together may make parcel assembly easier and provide areas for earlier development.
- **Distance from transit.** The limited multi-modal connectivity to exist between the Subareas and the rest of Hillsboro would be a constraint for residential development in the Subareas, particularly multi-family residential development. New and improved sidewalks and bike lanes will result from (re)development in and around the Jackson East project area. A paved trail being considered adjacent to the Crescent Park Greenway through the Jackson East project area would provide increased active

transportation infrastructure. Yet, the urbanized Subareas will remain a long walk or bike ride to access Hillsboro's vibrant centers and corridors. TriMet does not have plans to extend transit service into the Jackson East project area or the adjacent IRA, nor increase the frequency of Bus 46-North Hillsboro service. Bus 46-North Hillsboro, provides weekday standard service between Hillsboro Transit Center, Fair Complex/Hillsboro Airport MAX Station, and Hillsboro Library, along 1st, Glencoe, Evergreen, 15th, Griffin Oaks, 25th, Cornell, 34th, Brookwood and Dawson Creek. Bus 46-North Hillsboro has stops on the north and south side of NW Evergreen Road between NE 15th Avenue and NW Jackson Schools Road and another pair of stops on NW Evergreen Road just west of NW Jackson School Road. In November 2015, Ride Connection launched the North Hillsboro Link, a lower-cost, third party operated shuttle serving businesses in growing North Hillsboro with frequent stops in Orenco Station. The North Hillsboro Link currently provides service on NW Brookwood Parkway, approximately 1.5 miles east of the Jackson East project area. TriMet has suggested that perhaps a lower-cost, third party operated shuttle, similar to the North Hillsboro Link, could serve the North Hillsboro Industrial Renewal Area and future Jackson East employment south of an extended NW Huffman Street. A third-party operated shuttle may not be available to future residential in the Subareas, limiting multi-family residential development opportunities.

- **Potential conflicts with nearby industrial businesses.** The most significant disadvantage to allowing residential development in the Subareas is potential impacts on industrial development in adjacent industrial tax lots. Residential development in the Subareas may create compatibility issues with the adjacent IRA and the planned large-lot industrial development directly to the west of Subarea B. The City of Hillsboro has made and is planning to make considerable investments in transportation infrastructure, public utilities and services in the IRA to support what is expected to be significant industrial development in the IRA. Through this project, the City should consider potential negative impacts of residential development in the Subareas on industrial development in the IRA.
 - **Business recruitment and retention.** Some types of businesses, especially those with business processes that are noisy, product odors, or have round-the-clock activity, strongly prefer not to locate near residential neighborhoods. These types of businesses are the ones most likely to generate complaints from adjacent residential neighbors. This could create barriers to recruiting and retaining businesses with these types of characteristics in the Subareas.
 - **Branding of the North Hillsboro industrial area.** The North Hillsboro Industrial Area is regionally recognized as a good place for industrial business. North Hillsboro is one of the key areas within Oregon where industrial employment is growing and thriving. If conflicts arise with adjacent future residential neighborhoods, the reputation of North Hillsboro as a good place for industrial development may be negatively impacted, at least in areas adjacent to the residential neighborhoods.

- **Potential limitations on industrial uses.** Residential development in the Subareas could result in limitations of some industrial uses on land adjacent to the Subareas. These limitations could be imposed by the City to ensure compatibility or they could result from businesses choosing not to locate on land adjacent to the Subareas. The types of limitations might include those that are noisy, produce odors, or have round-the-clock activity.
- **Potential limitations on freight traffic.** Residential development in the Subareas could result in limitations of freight traffic routes. Freight traffic could be limited to major roads, such as Meek Road and Huffman Street. Freight traffic would need to avoid residential local streets.
- **Need to mitigate the negative impacts of nearby industrial businesses.** Compatibility with adjacent industrial areas and with Airport noise creates challenges to residential development. Residential developers will be responsible for developing the mitigation measures necessary to support residential development in the Subareas.

The opinions of industrial developers were somewhat mixed about these potential constraints of residential development in the Subareas on adjacent industrial areas. Some developers expressed the concern that residential development could discourage some types of businesses from locating on sites adjacent to residential neighborhoods. Some developers thought that the problem would be mostly from existing residents of the neighborhoods and that most businesses would be unbothered by adjacent future residential development. The developers did not express concerns that residential development in the Subareas would have impact beyond the taxlots adjacent to the Subareas.

Appendix D: Commercial Development Considerations

There are limitations on the size of commercial uses in regionally significant industrial land areas. The Subareas fall within the Metro Title 4 Map's Industrial Area. Metro Title 4 seeks to provide and protect a supply of sites for employment by limiting the types and scale of non-industrial uses in Industrial Areas. Title 4 allows residential uses in Industrial Areas. Title 4 requires that cities include measures to limit new buildings for retail commercial uses (such as stores and restaurants), and retail and professional services that cater to daily customers (such as financial, insurance, real estate, legal, medical and dental offices), in order to ensure that they serve primarily the needs of workers in the area.

The City's Industrial Sanctuary (IS) Zone, which complies with the intent of Title 4, is to be applied to any project area property designated Industrial and annexed into Hillsboro. The IS Zone requires that no single commercial node can occupy more than 5 gross acres of developed land; with not more than 50,000 gross square feet of total structure or building floor area per node. In addition, no single use within any commercial support node can exceed 20,000 square feet gross floor area. In Market Analysis Subarea B, a commercial node is allowed only after at least half a million total gross square feet of industrial development has been permitted.

As such, commercial development opportunities are required to be small-scale in nature. As such, the commercial development opportunities considered in this analysis are related to services and retail businesses that would serve residents and workers in and around the Market Analysis Subarea. The EOA documents need for retail uses, such as coffee shops and cafes, brew pubs, full service restaurants, specialty food stores, and wellness services. Other types of commercial services that might locate in the Subareas are personal services, such as banks or barbers.

This chapter provides a high-level summary of development opportunities for a small-scale commercial node around the future intersection of Sewell Avenue and the Huffman Street extension. This node might be two to five acres and could be on either side of Huffman Street or on both sides of Huffman Street.

Factors that support commercial development

The Subareas present the following opportunities and advantages for development of a small-scale commercial node:

- **Industrial development potential.** If the Subareas redevelop for industrial uses, they may accommodate 35 to 60 businesses with their employees. Workers at these businesses would have demand for services such as restaurants, a coffee shop, or a smaller scale convenience store or delis.

- **Residential development potential.** If the Subareas redevelop for residential uses, the area could add 660 to 1,600 new households. These households would create some demand for local services, such as restaurants, a coffee shop, personal services, and specialty retail.

Exhibit D-1 presents a review of literature estimating the amount (in square feet) of retail supportable by a household. Assuming that Subarea A and a portion of Subarea B develop in a pattern similar to the suburban and urban patterns shown in Exhibit D-1, each household will support about eight square feet of retail. In total, new households will support 5,000 to 13,000 square feet of retail. However, residents of the northern part of Subarea A will not live within easy walking distance of a retail node at the intersection of Sewell Avenue and an extended Huffman Street and existing auto-oriented retail creates competition for household spending.

Exhibit D-1. Supportable retail: estimates from research

Literature Source	Supportable Square Feet Per Household
Robert Wood Johnson Foundation (2013)	Food/Grocery: 11.6 sq. ft. Eating Places: 12.4 sq. ft. <i>Drinking Places: 1.5 sq. ft.</i> <i>Gift: 1.0 sq. ft.</i> <i>Flower: 0.5 sq. ft.</i>
Easton and Owen (2009)	15 sq. ft.
Capital Region Council of Governments, Urban Places	<i>Minimum: 12 sq. ft.</i> <i>Maximum: 25 sq. ft.</i> Average: 12 sq. ft.
Capital Region Council of Governments, Suburban Towns	<i>Minimum: 4.5 sq. ft.</i> <i>Maximum: 18 sq. ft.</i> Average: 4.5 sq. ft.
Gibbs (2011)	<i>Corner Store: 1.5-3.75 sq. ft.</i>

- **Adjacent industrial employment development.** Employment growth in the adjacent industrial areas is expected to be substantial over the next 20 years. The North Hillsboro Industrial Renewal Area does not include commercial services to serve this new employment. Workers at these businesses would have demand for services such as restaurants, a coffee shop, or a smaller scale convenience store or delis.
- **Extension of Huffman Street** The extension of Huffman Street will provide an intersection (with Sewell Avenue) where a commercial node may develop. This intersection is easily accessible in most parts of the Market Analysis Subarea, as well as the industrial areas to the east and west of the area.

Constraints to commercial development

The Subareas present the following constraints and disadvantages for development of a small-scale commercial node:

- **Limited potential residential development.** The potential amount of residential development in the Subareas (660 to 1,600 new households) will only support a limited amount of commercial development. Furthermore, the area is relatively isolated from other residential areas, so its retail catchment area is limited to the new development that could occur in the area. The new household, on their own, could support only about 5,000 to 13,000 square feet of new retail development, and this would be in competition with other more developed retail areas.
- **Demand derived from employment areas may not support full-time business operations.** The hours of operation of the industrial users that may locate in the area will influence business operations for any retail users. If the users run campus industrial in a typical work day and week schedule, restaurants and shops will struggle with evening and weekend profitability.
- **Limited sites for development.** While the commercial node would likely be small, at two to five acres, the best location will be on one or both sides of Huffman Street, to the west of Sewell Avenue. There are a limited number of properties in this area. Development of a commercial node would depend on there being a willing landowner.

Appendix E: Buildable Lands Inventory Methodology

City of Hillsboro staff developed the buildable lands inventory for the Subareas, starting with the methods used in City of Hillsboro's 2016 Housing Needs Analysis, which is based on Portland Metro's "2014 Urban Growth Report." The buildable lands inventory uses methods consistent with the inventory for the City's Housing Needs analysis and Portland's 2014 Urban Growth Report. The buildable lands inventory was completed using Geographic Information Systems (GIS) spatial analysis, the output of which is tabular and map data.

The following is a summary methodology of this buildable lands inventory used for this project. The methodology included estimating the potential range of capacity on developable land within the Subareas, assuming they would be zoned either SFR-4.5, SFR-10 or SFR-7.

1. Identify Development Constraints

- The Subareas have no tax exempt tax lots, schools, churches and social organizations, private "streets" in residential and mixed-use zones, rail properties, tax lots under 1,000 square feet, or parks, open space, and private residential common areas.
- Netted out FEMA 100-year floodplain (2009) and Bonneville Power Administration powerline corridor easement. The subareas have no slopes 25% or steeper.
- Netted out 18.5% for future streets on tax lots greater than a gross acre.

2. Classified tax lot as "Vacant" if a tax lot was:

- Fully vacant based on Washington County Assessment and Taxation data AND aerial photos; OR
- Had a single structure that is not a dwelling unit with under \$20,000 real market value per Washington County Assessment and Taxation.

3. Classified tax lot as "Infill" if it was smaller than 2 net acres and:

- 2.5 times the minimum zoned lot size (using (using SFR-4.5 = 4,500 square feet, SFR-7 = 7,000 square feet, and SFR-10 = 10,000 square feet) AND the real market building value is below \$300,000; OR
- Was an oversized lot (5 times the minimum zoned lot) regardless of building value.

4. Classified tax lot as "Partially Vacant" if it was larger than 2 net acres and:

- The approximate dwelling unit footprint (does not include the footprint of other improvements such as detached garages) was less than 2,000 square feet AND was less than 10% the net area of the entire tax lot; OR

- The tax lot net area was 95% percent or more vacant.
5. Classified tax lot as “Developed” if:
- It had an existing dwelling unit AND the minimum additional dwelling unit capacity calculation is zero (See #7 below).
6. Dwelling unit capacity for vacant tax lots was calculated using the minimum number of units based on these guidelines:
- Tax lot net acres divided by the minimum lot size (using SFR-4.5 = 4,500 square feet, SFR-7 = 7,000 square feet, and SFR-10 = 10,000 square feet), then rounded down to a whole number; can equal zero; or
 - Tax lot net acres divided by 2,000 square feet, then rounded down to a whole number; can equal zero.
7. Additional dwelling unit capacity for infill and partially vacant tax lots was calculated using the minimum number of units based on these guidelines:
- Tax lot net acres minus the maximum lot size (using SFR 4.5 = 8,999 square feet, SFR-7 = 13,999 square feet, and SFR-10 = 19,999 square feet), then divided by the minimum lot size (using SFR-4.5 = 4,500 square feet, SFR-7 = 7,000 square feet, and SFR-10 = 10,000 square feet), then rounded down to a whole number; can equal zero; or
 - Tax lot net acres divided by 2,000 square feet, then rounded down to a whole number; can equal zero.